Research Report For

ATTARS: THE FADING AROMATIC CULTURE OF INDIA

Under SAARC Research Project for

'Diminishing Cultures of South Asia: 2011-2012'

By

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SAARC PROJECT ON : ATTARS, THE FADING AROMATIC CULTURE OF INDIA
KANNAUJ, U.P.
(SKETCH MAP)
N
W
E
S
POND
MASJID
MOUNDS
ROADS
RAILWAY
RIVER
KACHA ROAD
GATE
A. RK Sons & Company
B. Essential Oil Bazar.
C. Amarnath Exports
D. Shiva Exports India
E. Meena Perfumers
F. Sai Export
G. Samart Perfume
H. Shanker Neo & Fragrances
I. Adiyat Entr.
J. Atri Perfumers
K. FFDC
L. Hina Bldg. of Azga Al. & Mud. Ali
M. Azga Ali Mhd. Ali Factory
N. JAICHANDRA KHANDAR / LAKHAND TILA
O. RP Araman
P. Jayat Araels
Q. Sandalwood Factory
R. Hina Buldng - Sandalwood Factory
JAIN TEMPLE
CHINTAMANI TEMPLE
RIVER CHITRA
CHANDAN MIR
HAJI SHARIF
HAJARI NATH
NON-EXSISTENT HAVELI VEERBAN
JAMI MASJID
GAURISHANKAR TEMPLE
River Kali
River GANGA
ID GAHA
ADIYAT I ENTERPRISES
AJAIPAL TEMPLE
BALAPIR MUGAL KAL
CLOSED FACTORY
SHEMAKALI
WAY TO GANGA
FORT
KAMANA NATH
Boza Gate
MANIKPUR MOUND
SN Inter College
Durga Jadi Booti Bhandar
CLUBSHAR MOUND
MAKHADUM SAHANIYA
MUSEUM
SBS Inter College
SHIRRAHA MOUND
HAVELI MARATHA
PHOOLMATI DEVI TEMPLE
SHAHANA ITTAR
SANDALWOOD FACTORY
SINGHAWAHINI TEMPLE
NEW SANDALWOOD FACTORY
BRATPURI MOUND
KALI TEMPLE
SN INTER COLLEGE HOSTEL
BILGRAM ROAD
RAJ GATE
CLOSED SANDALWOOD FACTORY
RAM-LAKSHMAN TEMPLE
PHOOLMATI ROAD
KANNAUJ CITY
SIVA TEMPLE
PSM College
FARUKHABAD
G. T. ROAD
STATION ROAD
INS. HOUSE
SORAJ POND NON EXSISTENT
Ram Sita Temple
(TAHASIL) SARAIGATE
SARAIMIRA
RUGIR
DURGA TEMPLE
BUS STOP
MAHADEV TEMPLE
KANNAUJ RAILWAY
RAUZA Mhd Ahmed
TIRWA ROAD
STATE HIGHWAY
KANPUR
2012
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ABSTRACT / SYNOPSIS

Traditional knowledge when recreated and re-applied may beneficially impact human health and also generates healthy social and environmental practices. *Ancients by their instinct knew the effect of aroma ingredients of plants on the Mind and the Body.* Man has used aromatic plants with medicinal value ever since the Stone Age. The early humans rubbed strong smelling herbs on their bodies to repel insects and to hide their human scent from animals that they feared or hunted. They also adorned themselves with sweet smelling herbs. They sampled these herbs on the number of effects that were generated in terms of relaxation, up-liftment or for energizing. Extracts of aromatic plants have been used for thousands of years for flavours and fragrance in medicine, perfumery, cosmetics, and religious ablutions and for culinary delights. Foul odours not fragrant ones were the key to development of herbal healing. This unique understanding by early humans resulted from the use of aromatic herbs to mask the stench of rotting meats. Hence use of culinary herbs which today are flavour enhancers, was incidental due to food preservation attributes.

Modern science has understood these key aromatic components in spices and other herbs for being responsible for their flavours and fragrance. They are obtained as essential oils, oleo-resins, absolutes, and can be isolated by value addition as individual compounds, components or chemicals. These essential oils contain anti-microbial compounds which on one hand act as food preservers and on the other hand prevent disease by attacking the disease causing micro-organisms. They are anti-oxidant, antiseptic, anti-inflammatory and much more as a matter of fact they are almost all curative.

Intensive research in modern times has led to a similar understanding of plant aromas as Nobel Prize in Physiology / Medicine 2004 was shared by Richard Axel and Linda B. Buck of Howard Hughes Medical institute, U.S.A, for their Discoveries of Odorant Receptors and the Organization of the Olfactory System only to re-enforce this belief. Twentieth century was undoubtedly the most happening century in terms of expanding frontiers of science and technology. It witnessed dramatic changes on the Indian peninsula too. Reflecting on the

past, we can only feel nostalgic about the rich heritage that stagnated for a number of centuries due to foreign onslaughts. Rich inland trade and maritime history indicate India's trade links with Middle East and West highlighting her immense potential.

We do understand that Heritage and Culture do not exist in vacuum but are a part of the environment where people live, work and develop new infrastructure, build roads, sanitary landfills and parks. Many a times this threatens the cultural resources which have had a long existence and are intertwined with culture. In the Idea Exchange session of The Sunday Express of November 25, 2012 Irina Bokova, Director General UNESCO has rightly pointed out that heritage and culture are subjected to diverse pressures—that of modernization, creation of infrastructure, development policies and urbanization. She firmly believes that protecting heritage sites should not be looked upon as an obstacle to any of this if there are correct policies to include it in the local development plan. However getting a UNESCO site inscription is an asset as it makes it visible but what is most important is the desire to protect heritage and culture and pass it down to the future generation. Hence preserving intangible culture is as important for it may not have universal value but is of value to the local community and extends reassurance in this globalized world of no boundaries.

For India the ancient aromatic culture of attars or ittarz was once associated with the ruling and royal classes who were the elite. It was the prized preserve of the Kings, Queens and the Aristocracy. Common man could not even dream of it as it was a very expensive commodity. Indian perfumery is age old and dates back to Indus valley civilization. Indians had understood the effect of fire on medicinal aromatic plants. Indians had understood the effect of fire on medicinal aromatic plants including spices havanas, homas and agnihotras. In India fire, fragrant smoke, fragrant waters have played an important role in religious ablutions, sacrificial fires, medicine, havanas, homas and agnihotras. A modern archaeological expedition in 1975 to the Indus Valley had brought to light excavated terra-cotta distillation equipment. The terracotta distillation still of the Indus-Valley period excavated at Taxila by Dr. Paolo Rovesti was not without evidence of perfumery as some perfume-containers were also excavated alongside. These artifacts find mention in the Rovesti records of 1977 and are an all- important documentation to indicate that the art of distillation was known to the people of Indus valley. These artifacts are at display at the Karachi Museum.

An inference can be made that the Arab Avicena who is credited with the discovery of distillation process merely re-discovered the art. He is known to have translated 'Charaka Samhita' into Arabic which he titled as 'Sharak Indiana'.

Even if essential oils were not available at such an early date, it can be said with greater conviction that most man-made fragrances were natural in the form of incense and ointments. During the reign of the Egyptian pharaoh Khufu, builder of the great pyramid (2700 B.C.), papyrus manuscripts record the use of fragrant herbs, oils, perfumes, temple incense and healing salves of fragrant resins.

For the Indian sub-continent it can be said that even before Aryans could lay down written records, the people of Indus valley had developed the art of obtaining aromatic waters or synthesizing several plant extracts for various reasons which were later adopted by Vaids and Hakims for medicine. The development of perfumery continued to evolve during the Vedic period as mentioned in Ayur Veda. Ramayana and Mahabharata also mention perfumes, cosmetics and incense. Bhagavat Geeta describes the use of sandal wood and rose water being sprayed at the Swayamvara of Draupadi. Nagarjuna, a scholar of South India in 100 BC, wrote a treatise on incense candles.

In ancient times, the art of making 'attars' and 'floral waters' had become well established particularly during the Gupta period. In fact 'Jalyeaya Aaswan' meaning water distillation finds mention in Charaka Samhita.

How Kannauj came to be the centre of perfumery can be evidenced from the fact that during the reign of Harshawardhan Hindu art and culture were at its zenith and perfumery took firm rooting with his patronage. Kannauj[1] became the biggest centre in aromatic(s) and created history when Harshawardhan for the first time imposed a tax on vetiver grass (khus). The seventh century Sanskrit poet Vanabhatta who was the court laureate of King Harsha, has given a vivid description of the use of incense in the marriage ceremony of Rajyashree[2] who was married to King Grahvarman of Kannauj. However, the 'Gandhi-kan'

[1] The oldest known name of Kannuj is 'Mahodaya Shri' because of its grandeur and prosperity. The city was also known as Gandhipur, Kushahasthali, Kanyakubja, Kusumpur, Shahabad and Zafrabad during later periods.

[2] Sister of Harshvardhana and daughter of Prabhakarvardhana; the tradition of using incense was prevalent even before Harshvardhana's time.

on the seals that were in use, about 2000 years ago, indicate that the state had recognized the rights of the makers of attars even before Harshawardhan.

Under the Mughals, centers developed at Ghazipur, Jaunpur and particularly Kannauj, attars manufactured at the 'Gandhi-an mohalla' of Kannauj, used to be sent to Delhi for Emperor's use. Under Jahangir, an official was appointed named as 'khushbu-daroga[3]' to supervise and arrange for the proper supply of attars.

Today when the spices cost so little it seems unbelievable that once they were a royal luxury and men were willing to risk their lives to obtain them. The fame of Indian spices is older than the recorded history. Even before Greece and Rome existed, Indian spices had reached Mesopotamia, Arabia and Egypt. Spices had lured sea-farers to Indian shores trading sheep, cows and slaves for ginger, mace and pepper. During the middle ages, a pound of ginger was worth a sheep, a pound of mace worth three sheep or half a cow. Pepper the most valuable spice of all, was counted in individual peppercorns and a sack of pepper was worth a man.

The old city of Kannauj lies on the historic Grand Trunk Road. This GT Road immortalizes the vision of Sher Shah Suri in connecting the East to the West. Kannauj today, is a quaint little city that lies to the north of the GT road where major sites of historical and religious significance exist. South of the city along the Tirwa road is growing today and has some sites of historical and religious significance --these being the Suraj Kund which is non-existent today, Murari Devi Mandir, Padma sati Mandir, Sandoha Devi, Sitala Devi and Fetehpur Jasida. Nourished by five rivers ---Ganga, Kali, Chitra, Chamba and Yamuna this city had grown in strength and size under Hashavardhan in 7th century A.D. when its frontiers extended from the west to the east of Hindoosthan to become an empire and Kannauj was the capital. Kannauj is home to innumerable historic sites of religious sentiments of the Hindus and Muslim without any traceable intrusion by the British. These sites are inter-spaced with residential areas, more than 200 Attar manufacturing units, allied Agarbatti (incense sticks) and Dhoop manufacturing units, 22 sandalwood oil mills(closed today) and the bazaar specially designed to sell these perfumery products. Some of the historic sites with religious overtones are Sarai Gate, Andeshwar Mandir,

[3] As mentioned in Tuzk-i-Janhangiri

Mukdam Jamia, Bala Pir, Phoolmati Devi, Jain Mandir, Jagannath Baba Ghat, Raja Jaichand Khandahar, Lakhan Tila and much more as seen in the attached social map.

1998 was a year of special historical significance for India as the Fourth World Spice Congress at Chennai marked the completion of five centuries since the discovery of a sea route to India. The Western world had begun its aggression on India and the East for spices and now they look towards India for spice oils.

Laws related to IPR are a constant threat to traditions and culture which are unique to an ancient civilization like ours. Today India is the 3rd largest producer of essential oils and has a well-established position internationally. However, the threat is to the heritage industry of attar which is struggling to survive under the threat of modernization, urbanization and globalization. Today it is a fading aromatic culture though Attars (an ancient cousin of essential oils) were original perfumes created through the process of distillation.

Threat to Attars and inversely to the city of Kannauj

For Kannauj the history of this aromatic culture is rooted in the secret techniques of the families who have been involved in designing these products since centuries. Each family has had a unique formula which has been maintained as a well-guarded secret. However, in the face of growing technical advances and urbanization there is a growing threat to this heritage culture. Also, advanced technology of extraction has adversely impacted this Heritage industry. Inversely, the fading heritage is adversely impacting the uniqueness of the city of Kannauj. Thus this study aims to study the diminishing heritage of attar culture and document the impact of various forces on it with a hope to create the required sensitivity to prevent its eclipse in coming times.

1. Introduction:

Aromatic plants, their extracts and oils have been used for thousands of years as medicine, incense, perfume and cosmetics. It is more than just perfumery for in a fragrant environment, human mind experiences heavenly bliss, bringing psychological, physiological and physical comfort.

For the ancients, aromatic herbs must have been magical. However, as time passed this magic was incorporated into religion in which aromatic herbs were looked upon as gifts from God. Probably that is why these herbs figure prominently in ancient myths and religion. Their ritual use constituted as an integral part of tradition in most early cultures where their religious and therapeutic roles became inextricably intertwined. Fragrant herbs evolved into the early perfumes and embalming-mixtures.

Anthropological studies suggest that the primitive perfumery began with burning of herbs and plant material such as resins and gums. There were others which were identified for medicinal benefits such as a laxative or a diuretic. With the dawn of civilization, man used processes such as enfleurage[4], maceration[5] and unguents6 in infused oils for anointing and healing the body. As development took place, the knowledge led to understanding the medicinal value of plants with more varied uses. Civilizations, separated by vast geographical distances from each other, have used plants in almost similar manners and apparently independently of each other.

This work highlights the importance of plant aromatic material in the life of man and its role in evolving civilizations to highlight the '**Traditional methods of extraction which are to stay in spite of the most advanced and efficient processes of steam/ hydro/ super critical extraction.'**

Belief lies in “The degree of excellence and refinement of cosmetics and fragrances at any given period of civilization remains to be the index of the cultural development of that period” as observed by Dr. P. K. Gode, an Indologist of repute from Bhandarkar Oriental Research Institute(BORI)Pune in Maharashtra.

According to him Gandhashastra was a well-established science and art using fragrance to make cosmetics which focused on the methods and the uses of aromatic ingredients (Gandhdravya) thus making it an integral part of the Indian Materia Medica. Referring to these 'aromatic ingredients' it must be appreciate that “There are not many places in the world that have such a rich contribution to the Cultural History as that of India and have resulted in a fascinating understanding of India’s esoteric aromatic culture with medicinal undertones.” These are the variety of aromatic plant materials with a unique history behind them. “One cannot talk about the plants of India without studying their religious, social, economic and medicinal significance, so understanding them and appreciating them becomes a truly inspiring adventure”, observes Christopher MacMahon who visited Kannauj in 1994 and goes on to say, “the continued existence and use of these plants over several millennium has a powerful conscience and sub -conscience influence on the Indian mind and are associated with..... healing.....and highest spiritual aspirations.....for people who sustain themselves by this direct inter-action with nature have..... respect and veneration because they know that from these plants come their food, medicine, clothes, and all other necessities and conveniences of life.” This understanding is the result of a deep study of sacred texts, epics, travelogues and biographies of rulers through ancient and medieval periods of Indian History.

The purpose of this project is to document the historic process of attar making for the preservation of a cultural heritage valued for aiding spiritual pursuits and giving physical, physiological and psychological comfort.

The uncontrolled spate of burgeoning urbanization and technological advance poses a threat to this culture which is also threatened by the altered need for products of mass consumption.

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2. Methodology

The data collection involved a survey of the prevailing manufacturing houses involved in attar making today. The survey was conducted to access the number of processes which existed earlier and have gradually increased / decreased / altered with the passage of time. Interviews, questionnaires, case studies, group discussions were done. The data thus collected indicated that the number of such centres have closed shop and a number of trading communities have gradually reduced. Thus there is a decrease in the number of product designing families, number of products and traders. This further indicates a decline in the economic status of the city which has compelled the people to look for profitable options elsewhere. Many business houses have been motivated to send the young generation for higher studies abroad for more lucrative options in career. Some have confessed that the option lies in making synthetic perfumes and aerosols.

Visits were undertaken to interesting facilities and leading perfumery houses at Kannauj and Lucknow which resulted in enlightening interviews, questionnaires and discussions. Interviews with Atul Jain and Pushparaj Jain of Pragati Aromas, J.N. Kapur of Jagat Aromas, Akhilesh Pathak of Munnalal and sons, Rajasthan Essential Oils, Abhay Tandon of Khatri Perfumers at Khatri Bhawan, Mullikk Saheb of S. Md Yaqub Md Ayub, Asgar Ali Mohammed Ali, Subhash Gupta of Beni Prasad Mool Chand and Sunil Gupta also of BPMC made it clear that all these firms have been operational since the early 1800s. Views of a number of entrepreneurs and those in academics and research such as, Principal Director FFDC Shakti Shukla and Head Quality Control Nadeem Akbar of Fragrance and Flavours Development Centre initiated the process of looking at the attar culture of the past and the present, critically. It set into motion an understanding as to why the culture must be conserved for future mental and physical health of the people in the society where it took birth. There is no parallel to Kannauj culture even if the manufacturers of Kannauj have ancillary units in Aligarh in Uttar Pradesh for Rose or in Orissa for Kewara or in the south of India.

This report is based on information obtained from those interviewed along with literature survey, articles, letters, reports, records of manufacturing houses and assessment by foreign visitors to establish the deep connect between aromatic culture and their dependence on substances/ raw materials such as aromatic woods, resins, roots, flowers, leaves (of plant origin) and others like musk and nakh of animal origin along with other issues or problems faced by the industry. This also included visits to the museum, near-by farm lands and still photography of the facilities in Kannauj.

3. Results:

Outcome of the survey undertaken for this research:

1. Modern perfumery a commercially desired FMG
2. Modern perfumery is alcohol based and is the result of blending after the essence / essential /synthetic oils /synthetic components have been obtained independent of each other.

whereas

II. Indian Perfumery or attars is unique for a number of reasons:

1. Indian Perfumers create products called Attars from a natural blend of flowers, herbs and spices which when fixed on Sandalwood oil has a long lasting aromatic experience with medicinal benefits. It is valued for its trace elements as well. Sandalwood is valued for is properties as a natural fixative. In the world of perfumery it is reputed as an ambassador of fragrance. In the process of distillation, condensation, blending and maturing sandalwood absorbs the fragrance of flowers and other aromatic charges to create a product which is exotic and could be medicinal in nature.

2. The realm of perfumers and perfumery worldwide is known for its secrecy and the Indian Perfumers are no exception. Attar formulations being indigenous and unique to India are the secret preserve of the manufacturing houses. The special process and technique is unique to any one-production operation is kept under wraps.

3. There are about 250 odd facilities (small and big) that are operational till today though all may not be doing very well.

4. Modern steam distillation first introduced in 1920 when England could not foot the bills for Sandalwood oil it was set up in return for the exchange of oil. Thereafter steam distillation came to India. Although this unit gifted to Beni Prasad Moolchand still lies unused and abandoned in Kannauj.

5. There is a need for correction in today's world of open competition and challenges. The labor-intensive Attar industry originated in India but its future survival is dependent on the understanding and willingness of producers to open their cards and let competition give it a new lease of life. In view of this veil of secrecy, it is one sector that is minimally challenged by globalization and continues to move sluggishly.

6. The extraction technique of Deg Bhapka distillation is environment friendly, simple and sustainable as it is self -sustaining. Being labour intensive it is an ideal option for enhancing employment opportunities in the rural sector and promoting cottage industries.

7. Aerosols being alcohol based are not popular with the countries of Middle East hence attars remain to be in demand. However falling standards, greed and shortage of quality plant material is impacting the demand supply relation.

8. Substituting Sandalwood oil with cheap base material like Di-octyl Phthalate(DOP), (DEP) and liquid paraffin is the cause for diluting the exotic effects of attars which traditional users can identify quickly. They still clamor for quality attars of the past.

9. Hydro-steam and steam- distillation is the common extraction process for flowers around the world. Hence the technique to make rose water and rose is known but rose attars remains to be India's preserve. Attar industry is unique, as it alone depends on hydro –distillation for blending of flower attars. The receiver acts as a condenser which is technically rare as - blending, mixing and maturing takes place all together in the same vessel.

10. Dry distillation is practiced all over the world for Birch Tar and Cade essential oils. Kannauj in India alone distills highly aromatic Nakh Choya from sea shells and Frankincense.

11. National market today is a prevailing one for cheap quality Tobacco, Pan Masala, and Gutka flavouring products.

12. Has tremendous potential as a quality Aromatherapy product if quality production can be revived with efforts of all stakeholders.

13. The unfortunate closure of 22 sandalwood oil extraction units in Kannauj is the biggest misfortune for a country like India. A region with extensive availability of land and varied climatic and geographical features is wanting in a vision for the future. After 65 years of independence we have allowed huge investments to be lost. Indian supremacy in sandalwood oil is forsaken as we are in no position to harvest sandalwood. A blanket ban without progressive solutions is not the answer to the problem. A solution must be found.

14. Aging of attars gives value addition to it in contrast essential oils degenerate with aging.

15. Attars are less volatile in comparison to essential oils or alcohol based perfumery products. Essential oils exude into the surroundings due to high volatility thus creating a fragrant environment. This instability results in a quick loss particularly with those having top note and middle note. Those with a base note may linger for

some time. Attars on the other hand create the appropriate environment for the user and are experiential for the wearer.

4. Discussion:

- Late Dr. Birbal Sahni, a renowned palaeobotonist, had influenced Dr. Gode and many others, some of them being palaeobotonist P. V. Sithole, K.S. Saraswat, P. Pokharia and historian Late B B Lal to work towards this aspect of Indian Culture and identified a rich assemblage of crops in India.
- Evidence from archaeo-botany, ethno-botany, study of material culture, scripts, inscriptions, seals and work by archaeologists like Ernest Mackay and John Marshall and later by Rovesti have revealed a rich world of fayence vessels for expensive perfumes, incenses, powders and pastes since ancient times.
- Sacred texts, classics, literature, travelogues and accounts by traders abound with reference to this aromatic and luxurious lifestyle of the kings and queens celebrating life and death and also in the worship of Gods.
- This love for aromatics persists even today.

5. Recommendations

It will be a small but first ever attempt at making a historical and social survey of the city for understanding the very fountain of aromatic culture of India. An effort has also been made to adopt other **communication techniques for digitization** of the attar making process in India and mapping of the changes seen in the city over the long period of time. There has been an obvious disconnect in efforts to trace the changes in the city periodically but it is better late than never to do so now. In the face of growing technological advancements-- in the extraction processes and other methods of value addition, fresh insights and studies are necessary for immortalizing the **traditional attar** industry of Kannauj, particularly when IPR

laws are a constant threat to indigenous knowledge. Kan**nauj can be sold as a heritage tourism** destination **with a rich imperial history, as Harshvardhan's capital.** If Scotland can sell its scotch making techniques to tourists, India too can sell the unique and ancient attar making techniques to tourists.

Kannauj needs a facelift with academic inputs.

We hope to overcome this logjam situation soon and reinforce the city for a sustainable future and contribute positively in preventing extinction of its cultural strength.

Thought provoking development is that

- FFDC is promoting the cultivation of Sandalwood trees for the last two years.
- A special variety of early maturing Sandal in the near future heralding a new life for good quality attars.
- It has been procured from Bangalore and the efforts are towards its cultivation all over India.
- Thus giving up the notion that it can grow only in the state of Karnatak in India.

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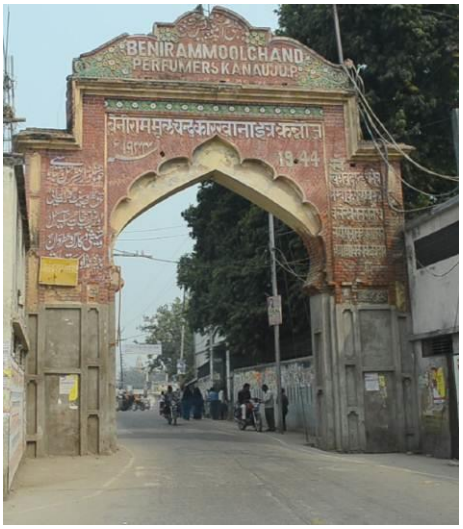
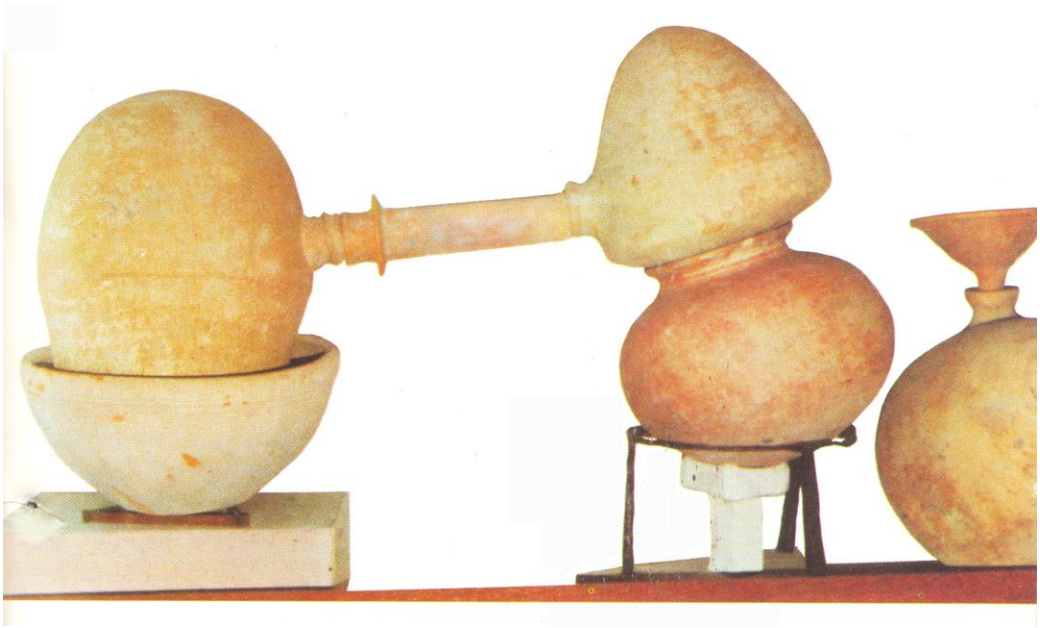
Photos of Kannauj city--- narrow lanes, business houses, social map of historic sites and attar manufacturers, entrance gates to the city, bazaar-gate of Asgar Ali Mohammad Ali,

Entrance gates to the city at the two main arterial entries to the city made in 1944. Another one at the entry to the factory of Asgar Ali Mohammad Ali one of the greatest perfumers in North India made in 1941. This goes to indicate a period of high economic activity in terms of exports for Indian business and the economic strains faced by England due to the two wars.



The City Today with a closed Sandalwood oil extraction facility, its narrow allys and minimal impact of urbanisation, growth and development.

The question is who does not want development in times today --- is it the people themselves or the Government? All the leading manufacturing unit owners have sent their children for higher studies either abroad or to Mumbai and Delhi. They also have advanced industrial facilities in Mumbai and other places in the south, yet they maintain their old links with the traditional practice in Kannauj with minimal attributes of a growing or developing city. So the answer is that somewhere they **do** gain out of it.



5000 BC , Indus Valley Civilization artifact on display in Taxila Museum, Pakistan

Dr. Paola Rovesti, 1977

Table 2: Section I

Aromatic(s) and Plant Life

1. Man's dependence on Plant Life: a cultural continuity
2. Development of Aromatic excellence
3. Understanding this dependence scientifically

1. Introduction:

The purpose of this project is to document the historic process of attar making for the preservation of a cultural heritage valued for aiding spiritual pursuits and giving physical, physiological and psychological comfort.

The uncontrolled spate of burgeoning urbanization and technological advance poses a threat to this culture which is also threatened by the altered need for products of mass consumption.

Kannauj reminisces the past history of aromatics in its produce called 'attars' manufactured by materials sourced from plant and animal origins. This knowledge is the result of a progressive understanding of the effect of heat on plants which resulted in aromatic pastes and unguents used by man for cooling the body or to camouflage the human scent for protection from wild animals or to remove the stench from rotting meat in ancient times.

Gradually, with the **development** of civilization, needs of men and women underwent a change and the art of manufacturing became sophisticated, compelling manufacturers in the field of cosmetics and fragrances to cater to the refined tastes of their consumers. So Kannauj remains to be the result of this evolution, unique to India as the processes of

hydro-distillation and dry-distillation were probably known to India even before the 17th century industrial revolution. Kannauj remains to tell the tale of this evolution.

Early Harappan settlement site at Kunal[7] and five **altars** or Hawan-Kunds at Sanghol[8] are a valuable and rare source of information on the use of botanical products in the performance of fire sacrifice during this period. The routes of this supreme Vedic ritual using plant products unearthed at Sanghol have been traced back to the Harappan Civilization at Kalibangan that is another 2000 years ago. At Sanghol, the whole complex of fire-altars was built in two phases. The altars of the earlier phase contained "ashy material and loose soil, containing wood charcoal pieces, charred grains, seeds and fruit remains[9]." The other altars contain "seals, sealings in Brahmi script, motifs such as Dharma-Chakra, Sri-Vatsa, Vedi and other artifacts"[10] thus it goes beyond dispute that fire sacrifice was ritualized for which botanical material was used as an offering into the fire. Material collected at Sanghol becomes valuable source of information as archaeology till now depended on seals, terracotta figurines and stone images which have reflected the importance of plants in the life of man. However, this carbonized botanical wealth of our country has further ratified the historical record related to the plant kingdom. Cereal grains, seed**s and fruits have been authentically identified and wood-charcoal has been studied after sectioning. Inclusion of herbal medicines in the offerings is evidenced by the fruit and seed remains of avla, haritaki, jaiphal, holy basil, black pepper and phok (ephedra). A few nuts of Nagarmotha (Cyprus) which are regarded as sacred in ritual have also been identified. The woods** of chandana, deodar, cinnamomun, pipal, palash, kaith have also been evidenced to have been used as fuel for the fire **[25].**

7 Dated 3000 BC to 2500 BC

8 Locally known as Uncha-Pind is situated 40 kilometers west of Chandigarh

9 K. S. Saraswat, author of a paper titled '*On the remains of botanical material used in fire sacrifice…at Sanghol, Punjab (Kushana period)'.*

10 As per K. S. Saraswat, op. cit

2. Aromatic excellence

Living connected with nature remains to be the simple truth for the perfect experience of happiness and health. There was a time when forests were undisturbed and animals fascinated man lending charm to the surroundings. In this kingdom of natural purity, trees, plants, herbs and firewood provided man the necessities for survival. The interdependence was respected; hence there was peace, happiness and health. The five senses are the very special attributes of Homo sapiens and have together shaped the growth, development and evolution of a civilized society. Man and other animals have been dependent on these senses for their very existence.

The early humans rubbed strong smelling herbs on their bodies or identified them for laxative action or diuretics. In the Italian Alps, a mummified body of prehistoric man, some 5300 years old, indicated the use of *bracket fungus*[11] as a laxative which was found along with his body**.**

History of aromatic(s)[12] is as old as human civilization. Aromatic(s) was considered to be more than just perfumery. In a fragrant environment, human mind experiences heavenly bliss, bringing psychological, physiological and physical comfort. This work explores the importance of plant aromatic material in the life of man since ancient times.

The ancient history of fragrance is shrouded in mystery, though the use of fragrant plant material as essential oils[13] has been around for thousands of years in some form or other. It is believed that even before 5000 BC, fatty oils of olive and sesame were combined with fragrant plants to give ancient Neolithic ointments. As development took place, the knowledge led to understanding the medicinal value of plants with more varied uses.

In India, fire and fragrant smoke played an important role with 'Havanas' and 'Agnihotra' being a regular ritual in every home. The Indian subcontinent appears to be the oldest

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[11] *Piptoporus Betulinus* which contains agaric acid which is a potent laxative and oily resin that is toxic to intestinal parasites and bacteria.

[12] Refers to all aromatic ingredients as aromatic(s).

[13] Fragrance in the plants is due to the presence of essential oils, aromatic gums and resins

center where it was customary to use extracts from plants and so the extraction techniques gradually developed. Archaeological studies carried out in Sindh province of Pakistan indicate that the people of Indus Valley Civilization developed the art of distillation of aromatic waters and that they were used for bathing around 3000 BC.

The bath as an institution has a long history. The process involves soaking the body in water or some other aqueous matter such as steam, milk or mud. It has cleaning and curative purposes and sometimes religious or mystical implications. Archaeological sites and remains from ancient Egypt and the Indus Valley excavation of the Great Bath indicate provisions for hamam and sauna both as special bath areas, signifying bathing to be an important activity as a classical antiquity. People of the Indus Valley believed that the aromatic baths kept evils away and thereby, made the human body disease free. Romans fumigated their buildings and bathing areas with their favourite fragrances and massaged their bodies with oils after bathing. Aromatic baths thus find a place of importance till today. A quick feel of the mud bath can be experienced by the use of *'mitti ka attar*[14]*'*. This has developed into the modern concept of 'Aroma Dressing'.

Continuous shortage of water in Arab lands had evolved a novel bathing practice, which purified and cleansed the body without using water at all. Sudanese women practice this primitive method of bathing even now. They made a hole in sand in which was placed an earthenware pot filled with burning charcoal on to which were then put aromatic woods and resins. The women would de-clothe and crouch over the pots drawing around them a cloak to keep in the fumes. Sweating would cleanse the pores and fumigation of the private parts of body with scented smoke would act like an anti-septic and cleaning agent. Fragrant oils were rubbed on the skin which acted as tonic. Its effects were similar to a Turkish bath as it was followed by a gentle massage. Thus, learning from the past, modern concepts of aromatherapy refer to this exercise as "aroma-dressing". A degraded environment due to chemicals, pollutants like suspended matter, renders urban residents exposed to a number of ailments due to increased bacteria, viruses and fungi which can be effectively checked by

[14] Fragrant extract of a primary ingredient on sandalwood essential oil

aroma-dressing. As the oils used in aroma dressing exude fragrance in the surroundings and due to their anti-fungal and anti-bacterial activities, they offer protection from disease and infection.

The Vedic literature of India dating from around 2000 BC lists over seven hundred substances, including cinnamon, spikenard ('*jatamansih*'), ginger ('*shringara*'), myrrh, coriander and sandalwood. The manner, in which it is written, reflects a spiritual and philosophical outlook in which human beings are seen as part of nature and the handling of herbs a sacred task. Vedas codified their use for both liturgical[15] and therapeutic[16] purposes . Benzoin - which is used for pharmaceutical preparations, food flavour and fragrances, has been a valued substance for incense in temples since ancient times .

In medieval times in India, the deg-bhapka distillation led to making of 'attars'. Attar means smoke, wind, odour and essence. Herbal medicinal concoctions were made by `vaids' and `hakims' to treat ailments. The attar industry is a cottage industry. The equipment cost is low and traditional. The cost of attars varies from Rs. 500 to 1,00,000 a kilogram.

A report by Francis Buchanan in the Patna-Gaya report of 1811-1812 AD which was published by Behar and Orissa Research Society highlights the ecomonic value of perfumery trade of India. He reports, "Those who distil perfumes complain that business is overstocked and that the prices have of late been much reduced; but they still seem high,and no dependence can be placed on what they say, no two of them agreeing in their account but they are in easy circumstances." It is interesting to note how vividly Buchanan records the entire process of distillation in terms of the materials used and volume of charge required for a single process, capacity of various containers, amount of material obtained and the selling and cost price of the oils and water extract. It records "atur of roses is sandalwood impregnated in this manner which according to its quality sells at Rs. 1to 2 for a rupee weight while the real essential oil of Roses costs 50 Rs. at Patna. The sandal oil seems to extract the whole perfume from the rose-water as it passes into the recipient." What is surprising and interesting is how with changing times preferences change and value of goods increases manifold due to these preferences. Today

[15] pertaining to public worship
[16] treating or curing of disease

scarcity of sandal wood has killed the attar industry and if rose attar sells at Rs. 1,30,000 a kg. Rose essential oil sells at 10-12 lakh a kg.

He also reports on the essence of Motia, Majmua(lost in traditional use today), Kewda (Pandanus Odoratissimus L. mainly growing in the Ganjum Dist.of Orissa) and Jasmine scented sesame oil. There can be no distillation of of flower perfumes without flower gardens and Buchanan records the presence of Rose gardens in Patna and Bar and that most of the gardens belong to the persons who make oil.

Today as the world has lost its understanding and patience with for the making of Jasmine scented sesame oil Buchanan has recorded the process of making this product which was unique to India. He gives in detail the entire process with minute details regarding the amount of sesame and flowers of first quality or withered flowers of second quality which would give two different quality in the product. There after he also traces the variation in the selling price of the products with profit margins in each case. Buchanan's survey of the perfumery industry with the advent of British indicates European interest in the Indian Perfumery industry. There after European nations began entering the domain of perfumery and India which was the fountain head of perfumery has converted to become biggest consumer of foreign perfumes. "While Europe made rapid advances with the help of modern scientific knowledge, India lost even that much which it treasured so successfully for centuries past" says Dr. Sadgopal[17].

3. Understanding this dependence scientifically

Modernization introduced hydro-distillation[18], solvent extraction[19], absolutes[20] and cold expression[21] of essential oils from plants. Super-critical extraction[22] is the most advanced

[17] Dr. Sadgopal, "An update survey of Indian Perfumery Industry" in Indian Soap Journal July-Sept 1943

[18] distilling with water

[19] Process of dissolving in organic chemical like alcohol, ether etc and then distilling to extract the desired component by removal of the volatile solvent

[20] The left over fragrant material containing the essential components from the process of solvent extraction as explained above.

[21] Process of applying pressure to extract the essence from aromatic herbs and plants (mainly used for citrus variety)

[22] the process of dissolving the herbs in carbon dioxide or other organic compounds under very high pressure (above critical pressure) to obtain high purity essential oils

method of obtaining essential constituents from plants today, making these extracts highly potent.

Today, essential oils, plant concrete and absolutes, plant colours and aromatic (water) hydrosols find an important place in the fragrance industry, food industry, pharmaceuticals, cosmetics and other industries. Super-Critical extraction is the most advanced method of extracting essential constituents from plants today. These are highly potent for the process does not use heat as the medium for extraction and the components so obtained are in all completeness. India's export of essential oils of spices and oleo-resins has been increasing steadily since 1990's at the rate of 31% in value. The Indian industry has captured 25% of the world trade in spices with value addition.

4. Methodology

Review of Literature, visits to sites growing Aromatic and medicinal plants in the region referred to as the Indo-Gangetic region of Kannauj, Lucknow, Bara-Banki and some high altitude areas of Garhwal in the state of Uttarakhand.

Deforestation impacts Man in several ways. This study is focused on its impact on an industry that flourished to cater to the needs of the elite in the past but could have become accessible to the masses.

The risks arising out of climate change, denuded forests, growing urbanization, mutating viruses, altered bio-diversity and random use of antibiotics have endangered human existence. It is time that confidence in age old natural practices are revived to develop patience on one hand and build immunity on the other hand keeping human wellness both mental and physical the central theme for all development. This will generate the ability to withstand health hazards by simpler methods as was done by the ancients. These efforts may be of considerable value for the future generations though the present is lost in relentless pursuit of materialism and irresponsible consumerism. Nature and Environment are taken for granted. However, moderation has to become the working principle and

slowing down of such self-destructive approaches is unavoidable. Genuine raw material shortage has resulted in cheap substitutes that are harmful to human health.

For the making the required plant material available promotional and extension efforts have to be undertaken by the Government and NGOs. Grants and sponsorships must be extended to private farm owners. Extension services for cluster formation or cultivating and domesticating the threatened species from the wild must also be provided for. These are either over harvested and not permitted regeneration or are impacted due to climate change.

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6. Photo Album

Shri Gopal Saini with his Rose produce for Attar Industry and allied Gulukand industry.

Women making Incense sticks Agarbatti. It is a cottage industry inkannauj. Women are given material by the industry and paid Rs 16 per Kg. They claim that one woman can make upto 2kg in a day. Hence earning Rs 32 in a day. Cost of living in Kannauj must be substantially low as we bought Samosas for Rs. 2 each and a cauliflower cost us only Rs 2.

SOURCE OF LIVELIHOOD: AGARBATTI MAKING BY WOMEN

The Ganga nurturing Kannauj since time immemorial is today faced with the threat of sand picking, an illegal act but a reality as seen in the picture above. What does future have in store is on every one's mind. As we see a system collapsing under its narrow vision with relentless exploitation. Ganga will return to avenge its physical abuse as did Mithi in Mumbai in the floods of 2005.

Table 2: Section II

Aromatic Heritage of India

1. Gandhashastra : The Indian Science of Odour
2. History of Kannauj : Carving aromatic primacy
3. India's Trade Links with the East and West : a commercial asset

Introduction : Gandhashastra

The history of cosmetics and perfumery cannot be accurately reconstructed without understanding the history of all aromatic ingredients, which were used in the manufacture of cosmetics and perfumes. It needs to be clarified here that science of synthesizing aroma chemicals is a twentieth century development, however in my work, the word fragrance implies natural fragrant extracts from plants and in some cases animals. As many of these ingredients have medicinal value, they find mention in Indian medical treatises like 'Charak Samhita' and 'Shushruta Samhita[23]'. These treatises form the very backbone of ancient Indian medical practices. The Indian Gandhashastra or the science of odour is part of Indian medical science or Ayurveda. Consequently, the history of every aromatic ingredient (Gandhadravya) is part of the Indian Materia Medica., although Dr. P. K. Gode has used the term Gandhashastra to mean 'science of cosmetics and perfumery' and 'gandhayukti' as 'art of preparing different cosmetics and perfumery'.

Today, the study of Indian Materia Medica is closely associated with the history of pharmacology and is of supreme value for the reconstruction of history of Indian culture. This work highlights the contribution of Indian Gandhashastra as being in no way secondary to the cosmetics and perfumery in Egypt, Babylonia, Greece or Rome.

[23] Ancient Indian treatises and first written evidence on Ayurveda by Charaka and Sushrata; also known as two pillars of Ayurveda

In 1944, noted historian Dr. P. K. Gode of Bhandarkar Oriental Research Institute, Pune discovered two treatises – 'Gandhasara' of Gangadhara and 'Gandhavada' (Anonymous) with a commentary in Marathi, composed sometime between 1200-1600 AD with a commentary in Marathi, on the basis of earlier text, some of which are partly extinct24. According to Dr. Gode, Gangadhara mentions that he has compiled his treatise on the basis of earlier treatises or texts. However, he does not name them. These treatises belong to the same period of time as Varahmira's 'Brahtsamhita'[25] (500 AD), 'Agni Purana' (between 800 to 900 AD)[26] and Someswara's 'Manasollasa' (1130 AD)[27].

The Gandhayukti[28] section of the Brahtsamhita provides material on the history of ancient Indian cosmetics. The word 'gandhayukti' means the art and science of cosmetics and perfumery and literally means a 'combination of perfumes'. Vatsayana refers to it as one of the sixty-four subsidiary arts connected with erotic. Gandhasara records sixty-four verses on preparation of 'dhoops' and 'gandhajal' of five sorts.

The chemical processes employed in the manufacture of perfumes are mentioned as (a) decoctions (b) heating (c) mixing (d) fumigation (e) sprinkling (f) powdering. However, purification of the ingredients and blending one liquid with another and saturation of powder with a liquid is referred to in Agni Purana[29].

The widespread use of perfumes gave rise to a specialized class of artisans who took to the manufacture and trade in cosmetics and perfumery as their occupation. Perfumers stamps 'Gandhikanama' of 2nd B.C. made of copper, have been found at Kosambi, establishing the fact that aromatic culture was well advanced and contributed substantially to the economy.

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[24] MS found in the 'raddi' collection of Bhandarkar Oriental Research Institute, Pune. Folios 1-27a comprises the 'Gandhasara' and folios 27b-49 comprise the 'Gandhavada' with commentary in Marathi written in the same hand.

[25] Brahtsamhita's section on gandhayukti (chapter LXXVI) mainly deals with making of cosmetics with aromatic substances

[26] Agni Purana – As per Dr. R. C. Hazra's Puranic records, Dhaka 1940, it was compiled some time during 9th century.

[27] Manasollasa – it illustrates the use of incense in sacred and secular sphere of Hindu life in early Medieval India.

[28] Chapter 77 (37 verses), pp. 386-389 – Calcutta, 1865 Edition

[29] In chapter CCXXIV.20-21[29]

It's use also formed an integral part of all customary practices for social, religious and medicinal purposes. Varahmira describes various fragrances in cosmetics and if studied closely it will be found that there is a liberal use of spices – hair-bath[30], hair oil[31], perfumes[32], mouth perfumes[33], bath powders[34], incense[35] for religious worship, talcum powder[36] called `putvasa', hair-dye or `murdhaja-raga'[37], hair dressing, hair shaving, tooth-sticks or danta-kastha[38], tambula[39].

Flowers and garlands find mention in a number of chapters for both men and women and religious worship. Flowers were used for making various kinds of unguents anulepana and saundaranjana and abhyaijena[40] for anointing the body.

A glossary entirely devoted to the aromatic ingredients, 'Gandhadravya' is found in chapter 3 of the treatise on 'Gandhashastra', by Gangadhara. Several aromatic ingredients in the manufacture of cosmetics and perfumes are classified in different 'vargas' or classes.

1. Leaves - Holy basil leaves etc.
2. Flowers - saffron, champak flowers, clove etc.
3. Fruits - peeper, nutmeg, cardamom etc.
4. Barks - bark of camphor tree, bark of cinnamon tree.
5. Woods - sandalwood, firewood etc.

[30] Scented waters containing cassia bark, costus, spikenard, nalika etc.
[31] Containing Champaka, costus, cassia bark, manjishtha, in sesame oil
[32] Containing patra, turuska, vala, sandalwood, jasmine flower, jaiphal, cassia bark and tagara etc
[33] Containing nutmeg, musk, camphor, and scent of parijat flowers sprinkled with juice of mango fruits and honey. Although Agni Purana has mentioned cardamom and sugandha-patra also
[34] Valeria, cassia bark, aguru, bignonia,nakha and musk.
[35] Dhoopa contain satpuspa, kunduruka, sandalwood fumigated with jagari etc.
[36] Cassia bark, small cardamoms. Musk, camphor etc
[37] Repelling odor of iron and acid in the hair dye is removed by a wash with afore said hair bath and scented dyes.
[38] Bilva, sirisa, ficus religiosa, plaksha, karanja, arjuna, sala, devdaru etc.
[39] Lime, areca nut, beetle leaf along with clove and nutmeg; katechu is only referred to in later medical Samhitas.
[40] All three are various types of oils for anointing the body.

6. Roots - nutgrass and vala etc.

7. Exudation from plants - camphor etc.

8. Organic products - musk, honey, lakh, ghee etc.

The eight-fold classification of aromatic ingredients given by Gangadhara is sufficiently in keeping with modern perspective of healing with essential oils. This knowledge is the result of a progressive understanding of the effect of heat on plants which resulted in aromatic pastes and unguents used by man.

Gradually, with the development of civilization, needs of men and women underwent a change and the art of manufacturing became sophisticated, compelling manufacturers in the field of cosmetics and fragrances to cater to the refined tastes of their consumers. So Kannauj remains to be the result of this evolution, unique to India as the processes of hydro-distillation and dry-distillation were probably known to India even before the 17th century industrial revolution. Kannauj remains to tell the tale of this evolution.

History of Kannauj

- The Indian Attar industry is concentrated in and around the towns and villages of North Indian district of Kannauj which lies between 27 degree 13 min 30 sec north latitude and from 79 degree 19 min to 80 degree 1 min east longitudes.
- Kannauj has strong geographical advantages in its favor as it is situated on the banks of river Ganges with another four rivers in its neighborhood.
- The district has an abundance of aromatic plants and herbs**. Attar-making in Kannauj is therefore, opportunity-based activity.** Today, Grasse' France may have lost its whiffs of past linkages but Kannauj still has a lot to share with the world, in terms of its fascinating techniques of attar making and allied industry.
- The difference lies in **natural** and **synthetic** produce.

The Indian sub-continent appears to be the oldest centre where it was customary to use extracts from plants and so the extraction techniques developed as aromatic(s) played an important role in the religious and socio-cultural life of Indians.

Even before the Aryans laid down written records the people of Indus Valley Civilization had developed the art of distillation.

The development of perfumery and aromatics continued during the Vedic period. The classic literature of Ayurveda mentions attar of Rose and calamus. This indicates that distillation of rose and other attars was known in the Vedic Period.

The art of making 'attars' and 'floral waters' was well established during the Gupta period. However, Kannauj[41] became the biggest centre and has gone down in history as its Harshawardhan for the first time imposed a tax on vetiver grass (*khus*) which probably grew wild as a forest product. The seventh century Sanskrit poet Vanabhatta who was the court laureate of King Harsha, has given a vivid description of the use of incense in the marriage ceremony of Rajyashree who was married to King Grahvarman of Kannauj. Huien Tsang mentions trade in aromatics in his travelogues. However, the 'Gandhi-kan' on the seals that were in use, about 2000 years ago, indicate that the state had recognized the rights of the makers of attars even before Harshawardhan as mentioned earlier.

Trading was done along the Ganga as the river was used to send the goods downstream to Calcutta from where they were exported to other countries. It was therefore logical for all these manufacturing units to possess outlets at Calcutta.

Under the Mughals, centers developed at Ghazipur, Jaunpur and particularly Kannauj. Also, during the Mughal period, attar manufactured at the 'Gandhian mohalla' of Kannauj, used to be sent to Delhi for Emperor's use. Under Jahangir, an official was appointed named as 'khushbu-daroga' who would supervise and arrange for the proper supply of attar

[41] The oldest known name of Kannuj is 'Mahodaya Shri' because of its grandeur and prosperity. The city was also known as Gandhipur, Kushahasthali, Kanyakubja, Kusumpur, Shahabad and Zafrabad during later periods.

India's Trade Links

Various trade routes and trade exchanges, which were even named after the goods that were ferried such as *'cinnamon route',* caused the spread of aromatic culture, aromatic plants and aromatic products from east to west and vice versa. Frankincense, myrrh, galbanum, cinnamon, spikenard and vetiver were used by civilizations from Egypt till the Far East. Clinical research over the years has shown that frankincense and myrrh are immune stimulators. Kings in the past have bartered land, slaves, women and gold in exchange for aromatic substances. These substances have been considered even more precious than gold.

The Chinese have had an ancient herbal tradition that accompanies the practice of acupuncture, the earliest records being Shen Nung's Herbal book of 2700 BC and Yellow Emperor's Inner Classic dating around 2600 BC **[6]**. Aromatics such as opium and ginger were utilized for therapeutic and religious purposes. Religious ceremonies like 'Li-Ki' and 'Tcheou-Li' also used such aromatic substances. Borneo camphor is still used extensively for a number of rituals **[7].** There is a reference to Jasmine scented sesame oil in Susan Whitfields writings in her book 'Life along the Silk Road' and how the oil was specially imported from India for use by the Chinese. Discussions revealed the fact that this was a product made at one time only in Kannauj but no one was aware of the technique of doing so today.

The ancient Egyptian civilization has had the richest association with aromatics. Five thousand years ago, Imhotep, the physician of king Zozer had learnt about medicine and preparation of aromatic oils. Though his writing did not survive but it could have been incorporated in the later works of Papyrus Ebers, written 3500 years ago which describes the making of aromatics infused oils. Oils thus prepared were used as massage oils or the 'fine oils' could be used as choice perfumes or as incense in temples believing that it pleased the Gods **[8]**.

When the Jews began their exodus from Egypt to Israel around 1240 BC, they took with them the knowledge of using precious gums and oils, particularly for anointing. The ancient book 'Exodus' describes a formulation which was used by Moses to initiate the priests. These oils were prepared with Myrrh, Cinnamon, Calamus, Cassia and olive oil. The ancient Hebrews used various fragrances in temples to consecrate their altars **[9].**

The Greeks continued the use of aromatic oils and learnt much from the Egyptians. They used them both medicinally and cosmetically. Pedacius Dioscorides wrote a book about herbal medicines and five volumes of 'De Materia Medica', known as 'Herbarius' in first century AD, which has remained to be the world's standard medical recknor.

The Phoenician merchants exported their scents and gums to the Arabian Peninsula and the Mediterranean region. They introduced the West to the riches of the Orient, particularly camphor from China, cinnamon and spikenard from India, gums from Arabia and rose from Syria **[11]**.

The Romans were even more lavish in their use of perfumes and aromatic oils. They used three kinds of perfumes: 'ladysmata' -- solid unguents, 'stymmata' -- the scented oils, 'diapasmata' -- the powdered perfumes. They were used to give fragrance to their hair, body, clothing and bed. With the fall of the Roman Empire and advent of the Christianity, the Roman physicians fled to Constantinople taking the books of Galen, Hippocrates and Dioscorides. These Greco-Roman works were translated into Persian, Arabic and other languages **[12].**

In Persia, essences were distilled to make attars. As trade routes expanded, many African countries began to supply aromatic spices to the Middle East and the Mediterranean. The spread of Islam helped to expand the uses of aromatic substances. Rose and rose water became closely linked with Islamic culture **[13].**

In Japan, the use of fragrance was a fine art since 500 AD. Special schools taught 'Kado', the Japanese art of perfumery. Incenses were burnt for certain rituals, which became an art **[14].**

The discovery of America led to the discovery of hidden fragrant treasures such as Balsam of Peru, juniper, American cedar, sassafras and vanilla. The Native Americans also had a long history of burning incense and using scented ointments. Oils were used to massage the body as a therapy. The Aztecs made ornate, well decorated vessels to burn incense. Tribal folk used oils from pungent smelling plants for therapeutic purposes **[15]**.

The very 'essence' of India's cultural history lies in the use of aromatic ingredients and in evolving close trade relationship between the East and the West which in turn developed practices similar to each other.

Vedic (one example in Ayurveda mentions medication administered by the sense of smell called **'vamanopaya**') and post vedic literature(Brahmanas, Sutras, Aranayakas, Upanishadas, Vedangas, Jataka stories and Buddist sacred text) gives an intense account of use of aromatic formulations for anointment with sandalwood being an important component. Periplus and Pliny accounts are also a valuable source for this information. The luxury of the Mauryan period is well known and Arthashasatra describes the splendor of aromatics as SectII.11 highlights the demand for aromatic woods for various reasons mentioning 16 varieties of Sandalwood. This luxury continued unabated through the Sunga-Satavahana period. Mahabharata mentions the extensive use of aromatic resins, musk and sandalwood. From the Kusanas to the advent of the Guptas and epics by Asvaghosa and Vatsayanas Kamasutra and Saundarananda there is a mention of trade in aromatics for use as unguents (pipesangavilepanamhi), for fumigation of apparels (vasonganakacidavasayacca), as requisites for bath (ayojayatsnana-vidhim tathanya) and fragrant flower garlands (jagranthuranyah surabhihsrajasya).

Bana Bhatts Kadambari, Harsacarita and Hiuen Tsang's account pens a detailed account of the use of scented waters with sandalwood. Assam in this period and the preceeding centuries was an important source for sandalwood as is revealed by the gifts sent by the king of Assam to Harsh through Hamsavega. King Harsha anointed his body and bow with sandalwood paste before a battle. He taxed vettiver grass. Seals carried images of Gandhi-kans indicating that rights of workers were recognized 2000yrs ago i.e. even before Harshavardhan.

Most of the plant material mentioned in these texts finds its place in the making of attars. Brhatsamhita LXXVI 26 mentions sarvatobhadra scent made from nakha, tagara, and olibanum(turuska) mixed in equal quantities and treated with mace camphor musk and guda.. Brhatsamhita also mention an incense kopacchada made from benzoin, musta, nakha, bdellium, srisarja, camphor in honey.

Agnipuran gives a list of 21 drugs, aromatic woods and resins,They are nakha(unguis odoratus),costus(kushta),Ghana(root of cyprus), nard, benzoin, saffron, shellac(laksa), sandalwood, agallocham(nidada), pine resin, devakastha(Pinus devadaru), bdellium(guggula), srinivasaka(resin of pinus longifolia), camphor, myrrh, olibanum(kundaruku), sarjarasa(resin of vatica robusta).Agnipuran mentions that any two substances when mixed with honey give an incense (pinyaka) particularly Nakha with sandalwood. Incense tablets (gandha-vatika) in Lalitavistara, perfumed pills (gutki) in Agnipuran, fragrant ungents (gatranulepani), fragrant cosmetics (varti), ointments (varnaka) and fragrant oils (vilepana) find mention in Amarakosa.

In Amarakosa II.6. P123-132 is devoted to various denominations of aromatic woods sometimes it betrays their source of origin yet it is valuable for a detailed understanding of aromatics. It **gives four names** to the **sandal** of ancient India (gandhsara, malayaja, bhadrasri,candana) also the best sandalwood has three names (tailaparnika, gosirsa, harichandan) and red sandalwood has five names (tilaparni, patranga, ranjana, raktachandan) Amarakosa interestingly describes a **bath** which is a procedure using

perfumes in different formulations for --cleansing, perfuming,chaffing,rubbing, kneading, cleaning and restoration of body perfume after a bath. It mentions a perfume **yaksakadama** compounded from camphor, agallochum, musk, and kakkola.

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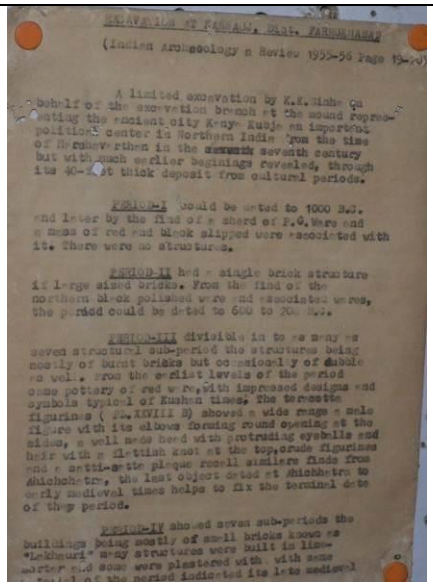
Album : Photos from Kannauj Museum



EXCAVATION AT KANAUJ, DIST. FARUKHABAD

(Indian Archaeology a Review 1955-56 Page 19-20)

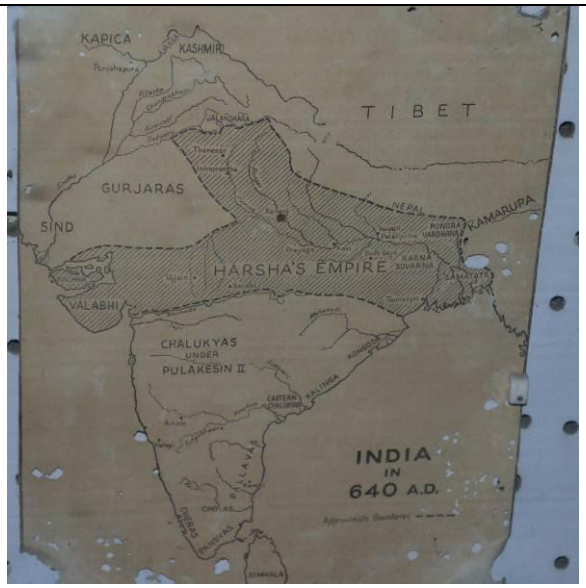
A limited excavation by K.K. Sinha on behalf of the excavation branch at the mound representing the ancient city Kanya Kubja an important political center in Northern India from the time of Harshavardhan in the seventh century but with much earlier beginnings revealed, through its 40-45 feet thick deposit from cultural periods.

PERIOD-I could be dated to 1000 B.C. and later by the find of a sherd of P.G. Ware and a mass of red and black slipped ware associated with it. There were no structures.

PERIOD-II had a single brick structure of large sized bricks. From the find of the northern black polished ware and associated wares, the period could be dated to 600 to 200 B.C.

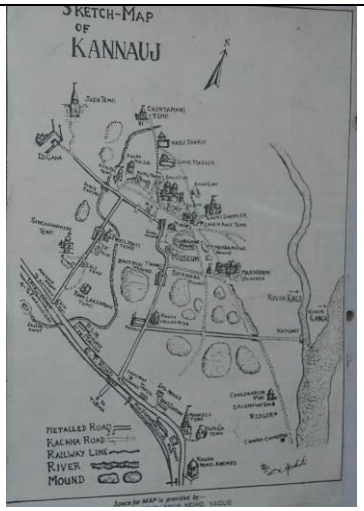
PERIOD-III divisible in to as many as seven structural sub-period the structures being mostly of burnt bricks but occasionally of dabble as well., from the earliest levels of the period came pottery of red ware, with impressed designs and symbols typical of Kushan times. The terracotta figurines (Pl. XVIII B) showed a wide range of male figure with its elbows forming round opening at the sides, a well made head with protruding eyeballs and hair with a fillettian knot at the top, female figurines and a earthenware plaque recall similare finds from Ahichchetra, the last object dated at Ahichhetra to early medieval times helps to fix the terminal date of this period.

PERIOD-IV showed seven sub-periods the buildings being mostly of small bricks known as "Lakhauri" many structures were built in lime-mortar and some were plastered with with some [illegible] of the period indicated its late medieval



Historical description of the city

Harshavardhan's Empire



Old map of Kannauj City

Head Seal of Harshavardhana

Excavated artifacts from the city itself

Table 2: Section III

Attars : Process

1 Spices,flowers and herbs in the creation of attars an end product

2 Fragrances : Attars/Agarbatti/Dhoops/ Water extracts /Hydrosols : Past and Present

3 Food Flavours : Past and Present

1 Importance of Spices

The ancient Egyptians were the first people to import aromatics around 2000 BC. Camels carried spices and other aromatics such as cinnamon from India, Nepal, Sikkim and jatamasih or spikenard from the Himalayas in India. In Joseph's time, Jericho was the principal trading post for aromatics and spices.

The trade extended further up to Mediterranean coastline. Almost daily, the spice caravans traveled along the torturous coastal road of the Red sea. The lure of spices had changed the course of history. The so-called discovery of the new world by Christopher Columbus was only a historical accident. The culmination of a series of misadventures in his search for the fabled spice lands by sea route eventually led to the discovery of the sea route to India by Vasco-Da-Gama. Subsequently leading to the rise and fall of empires and thereby cross fertilization of culture in which spices played a very vital role.

The Fourth World Spice Congress at Chennai in 1998 marked the completion of five centuries since the discovery of a sea route to India and the landing of Vasco-Da-Gama at

Calicut. Spices play a vital role in the making of quality attars and if one begins to consider efforts for promotion of attars at international level, quality standards have to be maintained in production, storing and transport of spices. This will also include the use of pesticides and fertilizers.

The Western world had begun its aggression on India and the East for spices but today India is their source for spice oils even SCFE grade which is closest to the natural product. Thus India offers credible solution to Western dismay with synthetic compounds **[241]**.

Twentieth century seems to be most happening century in the world with tremendous technological and scientific advances. It witnessed dramatic changes on the Indian peninsula too. However, reflecting on the past, we can only feel nostalgic about the rich heritage that stagnated for a number of centuries due to foreign onslaughts. A rich maritime history and trade links with Middle East and West indicate the immense potential that India had had **[242]**.

The fame of Indian spices is older than the recorded history **[243]**. Even before Greece and Rome were born, for centuries, caravans and ships carried Indian spices, perfumes and textiles to Mesopotamia, Arabia and Egypt. Spices had lured a number of seafarers to Indian shores. Today when the spices cost so little it seems unbelievable that once they were a royal luxury and men were willing to risk their lives to obtain them. During the middle ages, a pound of ginger was worth a sheep, a pound of mace worth three sheep or half a cow. Pepper the most valuable spice of all, was counted in individual peppercorns and a sack of pepper was worth a man.

Spices and herbs have been used in the seasonings of food since time immemorial. They are aromatic, vegetable materials, which enhance savories. They are valued not only as flavoring agents but also for other properties like stimulation of appetite, by increasing salivation, carminative action, preservation, and anti-oxidant action with some foods. In fact, the earliest use of spices was merely for preservation of food; the other uses followed later. Today they are specially sought for their aroma, flavour, color, bulk fiber, prophylactic

and even curative capabilities. Although foremost reason is still culinary but due to gastronomic revolution, it is more for the taste, flavour, aroma and mouth feel.

Ground spices have many disadvantages as they lose their essential oils and aroma. Hence, spices now are being given a longer shelf life by the development of alternative value added products like essential oils, oleoresins, essences, emulsions, dry dispersions, and encapsulated products **[244]**.

Indian Spices - New Vistas

The spices sector confined to the Silent valleys of pepper gardens and chilly fields in the south has surged ahead to new horizons. India has now become a producer and a processor, manufacturing value added products with brand names. India has taken rapid strides in the technology of processing, packaging and marketing. The phenomenal transformation was possible because of inception of spices board in 1987. Exports grew from Rs. 381 crores in 1991-92 to 1180 crores in 1996-1997. By 2000, Indian industry had captured 25% of the world trade in spices with value addition.

For long, Indian exports had mainly consisted of bulk packaged raw spices. However, changing market trends, consumer preferences, emergence of supermarkets, and demand for value added products shifted the focal point of exports. India now offers large variety of value added, ready to consume consumer-packs such as natural food colours, blended spices, curry mixes, oleoresins and spice oils. The central theme of India's export promotion has become quality. Two major initiatives of Spice Board have introduced excellence in the quality of spices - these are (a) Indian Spices logo (b) Spice House certificate.

Now the spice industry is focusing on major concerns of trade such as pesticide residues, micro-toxins, heavy metals, and microbial contamination. There is a plan to tackle these quality issues in collaboration with world organizations. Also dissemination of information to farmers and training programs at grass root level will lead to an assured source of excellent raw material.

The importance of volatile oils of spices in flavoring foods is not overestimated. Although some part of the oil is lost during the processing of food, the really important compounds are not so volatile and fats and resins in the food fix them. It is the volatile oil of a spice, which gives the pleasing, appetizing aroma to the prepared food. The smell of the food is experienced before it is tasted. Hence, the pleasing aroma is important in making a food item attractive. Even in oleoresin preparations from pepper and ginger, sufficient oils must be present to provide a balance between aroma and pungency.

Therefore, the demand for value added spice products such as spice oleoresins and essential oils is increasing as they are having the advantage over whole or ground spices due to consistency in quality, freedom from micro-organisms, uniform dispersion of the product, easy handling and reduction of storage space. USA alone accounts for 50% of the world's oleoresins followed by UK and Germany. India's export of spice oils and oleoresins increased from Rs. 69 crores in 1993 to Rs. 260 crores in 1996-97. This shows an annual growth rate of 31% in value.

As spices and herbs are building blocks to a series of value added derivatives such as spice oils, oleo-resins, food colors, hydroxy citric acid, ground spices, curry powder, freeze dried green pepper, dehydrated green pepper and green and pink pepper in brine. All this has completely changed the scenario in India for processed foods; nutraceuticals and most importantly perfume industry.

SPICES IN FLAVOURS AND FRAGRANCES

FOOD- PHARMA-CEUTICAL- COSMETICS - HYGIENE

Food-Bread, Cakes and other Confectionary, Biscuits, Beverage, Indian Sweets, Chocolates, Ice-Creams

Pharma-Pain Relieving, Carminatives, Cough Syrups, Antiseptics, Counter Irritants, Antipyretic, Expectorant, Anti-Spasmodic, Anti-Fungal, Insect-Bite

Cosmetics-Shampoo, Soaps, Creams, Hair Oils, Body Oils, Perfumes,

Hygiene-Soaps, Toothpaste, Body Oil.

Disinfectant --- Phenyl, Floor cleaners, Antiseptic, Pesticides, Insecticides.

Spice Oils- Caraway, Mint, Cardamom, Orange & Lemon, Saffron, Flavouring Agents Banapsha, Nutmeg & Mace, Ajwain (Thymol), fennel, Thyme, Turmeric, clove

Flower oils-Chamomile, Champa, Lavender, Jasmine, Rose, Marigold and much more Sandalwood

Plant herbage oil, roots and tubers---Wintergreen, Mint, Palma rosa & Jatamasi, Pyrethrum, Sage, T. Minuta, Eucalyptus

Spices as medicine

The usefulness of spices as medicine and nutrition management is also well recognized, particularly because of their abundance in vitamins, minerals and fibers.

India's leadership in the use of turmeric is well established because of which America's attempt to patent it proved unsuccessful. From the genus 'curcuma', curcuma longa (turmeric) is the most important due to its applications as spice oil, condiment, anti-septic, anti-inflammatory. Research has proved that curcumanoids derived from turmeric are effective antioxidant phytonutrients. Till now, the rhizome was the main product of

commerce and oil was also extracted from it. The turmeric leaves were an agro-waste product as 2.5 tons per hectare were generated during the post-harvest operation. A study carried out by the Oil Technical Research Institute, Hyderabad has found that the leaf oil also contains anti-bacterial and fungal properties. It works against the shigella species (dysentery) and its efficacy is comparable with standard antibiotics. It has anti-fungal properties against common human pathogens like candida, which cause skin infections.

Capsaicin derived from capsicum is a very good anti-arthritic phytochemical. Thymol, from ajwain, and thyme prevents anthrax infection.

Spices as Cosmetics

Cosmetic uses of spices are also well recognized. Turmeric in combination with sandalwood has been used since time immemorial for the rejuvenation of the skin. Varieties of basil leaves are used for treatment of dandruff and to combat lice. Vanilla extracts and cardamom extracts are used as natural fragrance for cosmetics. Color extracted from the plant genus capsicum chilly is now widely used as a natural colouring. Very soon, the use of chemicals in cosmetics is to be banned in the West. When this happens, extracts of spices and herbs can alone provide ready substitutes.

Spices in Attars:

Use of spices in attars occupies a very important place in the attar industry. Hina, Shamama, Khus, Rose, Kewara, Moulashri, Bele(jasmine) and Mitti ka Attar are unique products which are very intricately woven with the history of Kannauj. The products designed by each of the varied manufacturing units may vary in the final composition but a wide variety of spices are the base for the making these products. The process is very specific for the making of this special product and can be found only in Kannauj and nowhere else in the world. The question arises should the citizens of this country not take pride to keep the knowledge and technique alive for eternity. The technique will be discussed in the following section.

Flowers in Attars

The literature supports the practice of worshipping plants by highlighting the comfort generated in the forests by their aromatic flowers which exude fragrance into the surrounding areas. Fragrance and flowers are inseparable. Flowers have been essential part of all religious practices as worship of deities was never complete without flowers. Ancient literature of our country has dealt with flowers as it has been mentioned in other parts of this work. Flowers of jatamasih, kinsukas, sadmapushpa, kundarika, puskara, abja and ashoka find their repeated mention in Vedic and post-Vedic literature. Flowering plants are also depicted on architectural structures during the Buddhist period and thereafter. Paintings of various eras also depict flowers like lotus, kimshukas, ashoka and champaka. Inscriptional evidence also supports the use and value of plant natural aromas e.g. the Paharpur copper plate inscription of AD 478-479 and the Deopara inscriptions, particularly highlight the use of sandalwood.

In his studies in the History of Indian Cosmetics and Perfumery, Prof. P. K. Gode outlines the chronology of rose flower, rose water and rose attar from 2000 BC in which he has traced the import of rose to India from Farsistan in Persia between 810 and 817 AD. He also gives a list of some variety of rose cultivation in India on the basis of the work done by Dr. Birbal Sahni at Lucknow University and Prof. Hsu Jen of China who had made an inquiry on this topic in 1944. Fifty-seven varieties of Chinese roses were listed of which some important one can be named as Himalayan Musk Rose, cabbage rose, tea rose etc. It must also be mentioned here that 'European gardens had depended upon Oriental species of roses for breeding stock for many generations'.

After the Indus Valley civilization, the development of perfumery and perfumes continued to take place during the Vedic period. The classic literature of Ayurveda mentions that there are certain medications, which can be administered by *means of smell*. By smelling them, diseases can be cured. Madana fruit is powdered and put in Madanaphala decoction, which is purified 21 times. Thereafter, it is powdered and scattered on a full-blown Lotus flower and this lotus flower is plucked in the morning and the patient is made to smell it. This method is called 'vamanopaya'.

According to Hindu mythology, there are five heavens each presided over by a different God; that of Brahma is on Mount Meru and those of Vishnu, Shiva, Kubera and Indra are on the summits of Himalayan Mountains that are the abode of aromatic flowers and were mainly used to please the Gods. “Nowhere on earth are more plants with scented attractions to be found than in India and the people make finest use of them.”, says Roy Genders. It is on Mount Meru that the blue flowered champaka, which is in fact unknown on earth, is supposed to be found. Although it has the fragrance of the yellow *Michelia Champaka Linn.*, the real champak is a low growing evergreen tree bearing pale yellow funnel shaped flowers with a jasmine like scent that are used for the making of expensive perfumes **[75]**.

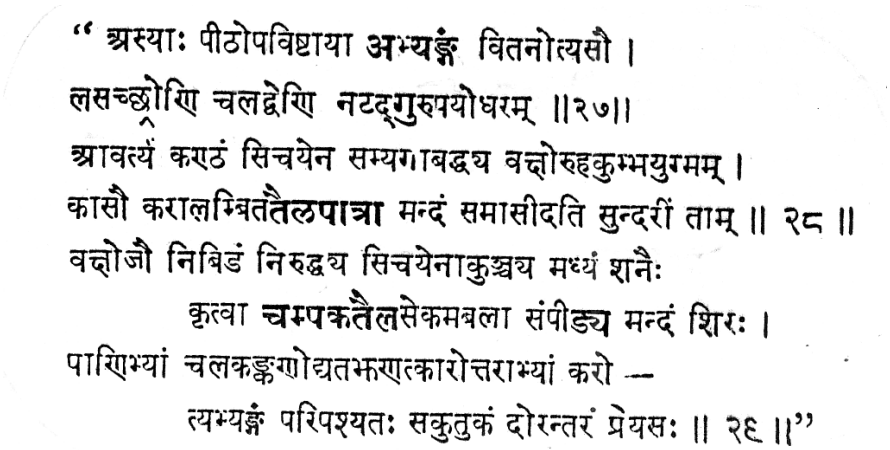
“चाम्पेयश्चम्पकः प्रोक्तो हेमपुष्पश्च स स्मृतः ।
एतस्य कलिका गन्धफलीति कथिता बुधैः ॥” (भा.प्र.)

“चम्पकः कटुकस्तिक्तः कषायो मधुरो हिमः ।
विषकृमिहरः कृच्छ्रकफवाताम्रपित्तहृत् ॥” (भा.प्र.)

“ चम्पकः कथितः शीतो वीर्येऽतिकटुको रसे ।
हृद्यः सुगन्धिर्विषहा कफपित्तविनाशनः ॥” (ध.नि.) [42]

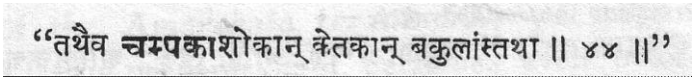
The use of fragrant oil of Champaka[43] is referred to in Subhasitaratnabhandagara for the practice of Abhayanga[44].

[42] As mentioned in Indian medicinal Plants (Kottakal)
[43] Also known as Champa (Hindi) or Champkah (Sanskrit); see chronology in Appendix 1.
[44] Smearing the body with oil or unguent by ladies in ancient India



" अस्याः पीठोपविष्टाया **अभ्यङ्गं** वितनोत्यसौ ।
लसच्छ्रोणि चलद्वेणि नटद्गुरुपयोधरम् ॥२७॥
आवर्त्यं कण्ठं सिचयेन सम्यगाबद्धय वक्षोरुहकुम्भयुग्मम् ।
कासौ करालम्बिततैलपात्रा मन्दं समासीदति सुन्दरीं ताम् ॥ २८ ॥
वक्षोजौ निबिडं निरुद्धय सिचयेनाकुञ्चय मध्यं शनैः
कृत्वा **चम्पकतैल**सेकमबला संपीड्य मन्दं शिरः ।
पाणिभ्यां चलकङ्कणोद्यतभ्रणत्कारोत्तराभ्यां करो —
त्यभ्यङ्गं परिपश्यतः सकुतुकं दोरन्तरं प्रेयसः ॥ २९ ॥"

Sanskrit anthologies contain many ***anyoktis*** on Champaka tree and its fragrant flower, which shows the popularity of the flower in the ancient Indian folklore. Thus, this flower has given aroma to Indian life and literature through the centuries[45].



"तथैव **चम्पक**अशोकान् केतकान् बकुलांस्तथा ॥ ४४ ॥"

(As well as the Champka, Asoka, Ketaka and Bakula trees.)

This reference to Champaka in Amarkosa[46] corroborates with Brahtsamhita. The name gandhaphali is used for champakalika in Brahtsamhita. Assuming that gandhakali stands for champakalika, it can be inferred that preparation of perfumes was even before the times of Amarkosa. However, it has been established that Champaka flowers have been used as aromatic ingredients for more than 1500 years.

Indian mythology indicates that in Indra's Garden of Paradise; the flowers not only enchant the senses of those who breathe their aroma but have the power to grant them every wish. Kama, the God of love of Indian mythology, is always depicted with the Cupid's bow and five arrows, each of which is tipped with the blossom of a fragrant flower and pierce the through the five senses. One of the flowers is the Jasmine**.**

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[45] In the description of Gandhamadan forest described in Aranayakapravan of Mahabharata – Critical Edition BORI, 3,155.44.

[46] Refers to Champaka as Champeya

"मालती कफपित्तास्यरुक्पाकव्रणकुष्ठजित् ।
चक्षुष्यो मुकुळस्तस्यास्तत्पुष्पं कफपित्तजित् ॥
सुगन्धि च मनोज्ञं च सर्वश्रेष्ठतमं मतम् ।" (ध.नि.)

(Malati has the medicinal properties to remove (heal) the disorders of kapha, pitta, swelling of the mouth, and its disease, wounds and even kushtha (leprosy). Its blooming buds (leaves) heal disorders of eyes; its flowers heal kapha and pitta. It is fragrant and attracts the mind. It is deemed to be the best of all.)

"मालती शीततिक्ता स्यात् कफघ्नी मुखपाकनुत् ।
कुड्मळं नेत्ररोगघ्नं व्रणविस्फोटकुष्ठनुत् ॥" (रा.नि.)

(Malati is cool, bitter and heals the Kapha dosha; it drives away the swelling in the mouth; its leaves kill the eye disorders; it is also used for driving away the pains of a wound, a sore or symptoms of leprosy.)

'जातीयुगं तिक्तमुष्णं तुवरं लघु दोषजित् ।
शिरोक्षिमुखदन्तार्तिविषकुष्ठानिलाम्रजित् ॥" (भा.प्र.) [47]

(Jatiyuga (plant) is bitter, hot, tuvarm; it is light and is a solution to many disorders of the head, eyes, mouth and teeth. It heals leprosy, wounds, vayu-doshas and removes toxins and pain.)

The essence of Jasmine[48] which the Hindus are known to make well is the most popular of all Indian perfumes and is mostly produced around Gazipur which is situated on the left bank of the Ganges above Benares. To ensure salvation every Hindu desires to visit it at least once in his or her life time and also to be cremated on a pile of fragrant sandalwood there. This is thought to bring salvation sure beyond all doubt. To extract the essence in the traditional way, the flowers are placed in stills with twice their weight of water and exposed to the air. Next day, the otto[49] appears on the surface and is removed by skimming. More

[47] As mentioned in Indian Medicinal Plants (Kotakkal).
[48] *Jasminium Sambac Linn.*, Bela or Mogra in Hindi
[49] Also formerly ottar or otter; an altered form of Attar – according to Shorter Oxford English Dictionary

flowers are then added and the process is repeated until the entire crop has been harvested.

Leaves and Herbs in Attars

Besides spices and flowers many herbs are valued for their leaves or tubers for the making of attars. They are equally valuable in the making of an end product. Basil, Capoor, turmeric, mint and Patchouli for leaves and Jatamassi, Kapur-Kacheri, Costus for its tubers are valued for the industry.

The Ancient Art of Extraction from Plants in India

In ancient times, the art of making 'attars' and 'floral waters' had become well established, particularly during the Gupta period. Kannauj[50] became the biggest centre and has gone down in history as its ruler Harshawardhan for the first time imposed a tax on vetiver grass (*khus*). The seventh century Sanskrit poet Vanabhatta who was the court laureate of King Harsha, has given a vivid description of the use of incense in the marriage ceremony of Rajyashree[51] who was married to King Grahvarman of Kannauj. However, the 'Gandhi-kan' on the seals that were in use, about 2000 years ago, indicate that the state had recognized the rights of the makers of attars even before Harshawardhan.

Under the Mughals, centers developed at Ghazipur, Jaunpur and particularly Kannauj. Today, Kannauj is compared to Grasse[52] in France. Also, during the Mughal period, attar manufactured at the 'Gandhian mohalla' of Kannauj, used to be sent to Delhi for Emperor's use. Under Jahangir, an official was appointed named as 'khushbu-daroga[53]' who would supervise and arrange for the proper use of attars.

The farmers of districts around Kannauj district namely Aligarh, Etah, Farukkhabad and Mainpuri grow flowers and supply their crops to Kannauj for the attar industry. Rose is obtained from Hathras and Aligarh, Khus from Bharatpur in Rajasthan, Chameli from

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50 The oldest known name of Kannuj is 'Mahodaya Shri' because of its grandeur and prosperity. The city was also known as Gandhipur, Kushahasthali, Kanyakubja, Kusumpur, Shahabad and Zafrabad during later periods.

51 Sister of Harshvardhana and daughter of Prabhakarvardhana; the tradition of using incense was prevalent even before Harshvardhana's time.

52 The difference lies in natural and synthetic produce.

53 As mentioned in Tuzk-i-Janhangiri

Chandoli in Jaunpur district and Raat Rani from in and around Bijnor. Kannauj abounds in Mentha (menthe arvensis), Palmarosa (cymbopogon martini), Citronella (cymbopogon winterianus), Lemon grass(cymbopogon flexuosus), Patchouli(Pogostemon patchouli), Tulsi (Ocimum basilicum), Rose (Rosa damacena), German Chamomile (matricaria chamomile), Margold or Genda (Tagetes spp), Bela or jasmine (jasmine sambac), Hina or mehndi (Lavsonia inermis).(**REF Application for Geographical Indication of goods, Registration and Protection Act 1999 UP Export Commissioners report)**

Description of Equipment used in the making of attars

(Hydro distillation)

Traditionally Copper has been used as the main structural material for it is malleable, easy to repair and a good conductor of heat. Today it's largely substituted by Steel but the end product differs in quality,colour and finish

1. Deg or still are copper stills which are directly heated and range in varying capacity from 10-160 kilos of floral/herbal materials. The lid of the still is called sarpos and is also made of copper having openings for connections to one or two receivers.

2. Bhapka or Receiver is a peculiar feature of attars distillation as it has no separate condenser. The unique odour of attars is obtained by condensing vapours into the base material mainly sandalwood oil. The receiver is also made of copper which is round bottomed with a long neck which connects with the Deg via a connecting pipe like structure called a chonga.

3. Chonga or Bamboo condenser is a hollow bamboo pipe wrapped with twine for insulation so that the steam does not condense while in transit.

4. Furnace or a Traditional 'Bhatti' is wood, dried plant residue or coal fed fires which can be manually controlled.

5. Cooling water tanks or ‘Gachichi’ is a place where the Bhapka is kept for cooling the distillate obtained from the Deg. The tank is at a lower level and more often than not sunk into the ground.

6. Leather bottles or Kuppi are containers made from leather obtained from animal skin due to their semi-permeability. These bottles are used for removing moisture from the attars thus separating water from the attars.

‘Nakh Chhoya’ ---Description of Equipment for Dry distillation : This is the process only used in India for distilling Nakh which is sea shell or Frankinsence(Loban) for making aromatic extracts to give the final finish to Shamama. World-wide this process is employed only for extracting Cad oil, Birch oil or Nakh oil. The process is also on the way out as material for extraction is not available and is a slow and expensive process. Most of the manufacturing houses have decided to discontinue the process and the equipment remains to be a museum piece with them.

Classification of Attars

Attars are classified on the basis of flowers or other raw material use—gulab, moulshri, kewra, motia, gulhina, chameli, kadam, khus, henna or mitti(mud). Except for Hina and Shamama rest of the attars are made from a single floral or plant material or from baked earth. Henna attar is a compound of several floral and herbal materials such as oakmoss, sugandhi mantra, laurel berry, cypriol, Indian Valerian, jattamanshi, hydichium spicatum, and attars of gulab, kewra, motia, gulhina and chameli. A superior quality of Hina may also contain saffron, ambergris, musk and agarwood oil and is know as Shamama.

Indeed single odour attars are produced but the spectrum of attar fragrances are produced but the spectrum can advance with the blending of several flowers, herbs and spices.

THE PROCESS

The art of making ‘attar’ revolves around fixing the aroma of flowers on sandalwood oil. Attars are manufactured in *'degs'* in which the plant charge is placed. These are direct fire-heated stills and their capacities can range from 10 to 160 kilos of floral or herbal material

and the lid of the still is called *'sarpos'* which is made up of copper having opening for one or two receivers. The receiver is called *'bhapka'*, which acts as a condenser. This receiver is built of copper[54], is round in shape and has a long neck. The still and the 'bhapka' are connected with a *'chonga'* which is a hollow bamboo pipe[55] wrapped with twine for insulation. The receiver contains the base material on which the aromas are fixed and is kept in a small water tank for condensation. The mouth of the receiver is sealed with a coarse cloth. The still is heated from below by lighting a fire and the temperature and speed of distillation is controlled by regulating the fire. Managing the still is a highly skilled job and the operator called '*dighaa*' by experience can match the boiling in the still and condensation in the receiver. When the desired quantity of vapours has condensed, the technique involved requires the use of a wet cloth around the body of the still for temporary pause in distillation. Likewise a '*dighaa*' can control the speed of distillation. The mixture of oil and water received in the condenser-cum-receiver is separated by the simple principle of removing water from an opening at the bottom and oil, which is lighter than water, remains at the top. Traditionally, leather bottles were used for storage because by the principle of osmosis, moisture would evaporate from the leather membrane leaving behind a clear liquid. The 'attar' industry survives till today in Kannauj.

These Fragrance products ---Attars are made from a combination of floral, herbal and spicy materials. Also obtained in this process are Rose water and other water extracts, Agarbatti, Dhoops and food flavours and food extracts. The equipment used in this industry are designed and fabricated in and around Kannauj, and Farrukhabad districts of Uttar Pradesh district of India.

Flavours occupy a very important place in products like Gutka, Zarda (Tobacco), Biryani, Sweets, Beverages, Gulukand (rose petals in sugar syrup).

[54] Copper was used as the main structural material because it is malleable and easy to repair, it is a good conductor of heat and no specialized welding equipment is required to repair worn-out or damaged copper vessels.

[55] As there is no fixed distance between the still and the receiver, bamboo pipes were used to connect them. The bamboo pipe could be shortened and was cheap and easily replaceable.

Methodology : Visits undertaken to large, small and medium manufacturing units

Efforts were made to locate closed units. Interviews were conducted with the family of those in manufacturing of attars or those in allied industry. Workers---unskilled and semi-skilled were also interviewed at the sites and photography of the process done. Visit was made to the Farms growing and supplying raw material such as fresh flowers and herbage for attar making. The Attar Bazaar was visited and we found them selling all kinds of aromatic substances—natural, chemicals and synthetically designed products. The most enlightening was the visit to the Kannauj Museum.

The industry is unorganized and hence continues without any additional efforts for development and growth. There have been no research and development efforts and academic inputs have been negligible. This is the first effort in attempting to compile the history with suggestions for preventing fast advancing death of a heritage.

Assessing the present status of the industry it can be said that something needs to be done fast and it is not difficult. It just needs a group of well- intentioned people to do so. Mr. Puspraj Jain proprietor of Pragati Industries was requested to collaborate with UP Tourism Director Dr. Manoj Dixit and FFDC to organize Attar Festival in Kannauj to bring Kannauj on the International Tourism Map he was glad to inform that the government too was interested in doing something for Kannauj. He was open to further interaction. We hope to further this intent.

Academic pursuits by the younger generation is recommended, by institutions within Kannauj such as is the case of Swapnil Pathak a B. Tech from Pune University who is doing a one year Diploma in Aroma Technology at Fragrance and Flavours Development Centre, Kannauj. On enquiry about her vision for the attar industry she informed that she has a number of thoughts and plans to combine Technology with the new understanding of Aroma chemistry. Thus students from all over India should be encouraged for residential courses in Kannauj. Also setting up of University of Kannauj is recommended as it was made a district in 1997 and thereafter it has a medical college which started this year.

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EQUIPMENT AND PROCEDURE.

Deg being prepared for Mitti ka Attar

Deg being prepared for Hina Attar

Water added thereafter

Deg is sealed with ‘Chikini Mitti’

Deg is secured and made air tight

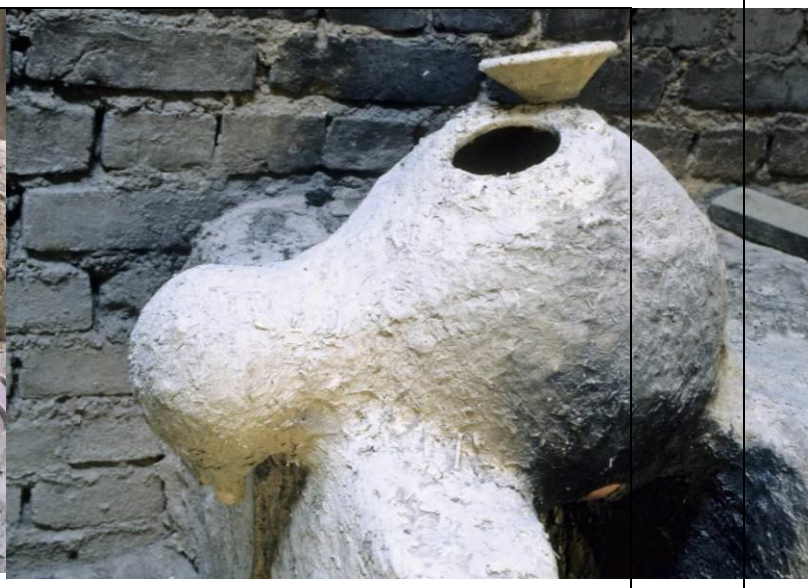
Chongas placed for connecting the Deg to the receiver or Bhapka

Chongas fixed and made airtight with multani mitti

Bhapkas or receivers ready for condensation within the water bath

Stills fired

Bhapkas cooled after extinguishing fire for 12 hrs. Water is separated from the oil next morning. Oil in the Bhapka is maintained for another day of fixation. Process can continue for 30days depending on the quality and richness in oil.



Nakh chhoya : Dry distillation of sea shells and frankinsense

Table 2: Section IV

Aromatherapy

1. Essential oils in Aromatherapy
2. Attars in Aromatherapy

Our sense of smell consciously or unconsciously makes us practice aromatherapy twenty-four hours a day. The air we breathe is an effective blend of odours and fumes from soaps, lotions, sprays, paints, food, flowers, garbage, chemicals and living bodies of every sort. Also, when we sleep in the night, the smell of light creams, bed-sheets, quilts, and mattresses is around our noses which together works on the brain. Smells have a primal influence, as nose is the gateway to the brain. This has a direct influence on the mind and the emotions. All the odours move into the body with our breath that is the life force or 'prana'. Ayurveda is concerned equally with our breath and creation of right environment. Recent studies have explained that foul odours foster anti-social behaviour while flowery once enhance learning ability and memory leading to the conclusion that certain aromas could be useful in class, offices and subways.

In Manasollas, it is reported that fragrance can be created in plants. Plants producing flowers having no smell will bear fragrant flowers if they are given manure with soil taken from the pits of plants bearing fragrant flowers and watered with water with the powder of gandh-patra i.e. sandal tree leaves, mustha[56], tagara[57] and Usira[58] **[233]**. Likewise sound and aromas can fill the universe and help the soul rise above the mundane aspects of life and identify itself with God. A blend of homa (fire), chant and aroma thus generate the right blend for lifting the flagging spirits. Homatherapy, aromatherapy and sonic theology in the form of reciting mantras or nama-japa can elevate the self to bring nirvana or moksha. Aromas have the spiritual power to elevate the mind and fragrances generate the ability to

[56] *Cypress rotundus*
[57] *Valeriana Wallichi or Indian Valerian*
[58] *Andropogon muricatus -- khus*

communicate at a higher plane with not only those around you but also the creator of the universe.

‘A particular importance is attached to continuous recitation of God's name devotion to the name is the same thing as reverential worship of God and signifies continuous presence of God in the mind of devotee.’ says N. N. Sengupta **[234]**.

The `mantra' obtained from the guru creates the sonic world which is sustained and developed by the practice of mantra recitation and japa which is carried around within the body. At the time of death, the accumulated sonic charge secures release from suffering of rebirth in the kingdom of God **[235]**. Guy L. Beck summarizes that the sound `seed' is first watered by constant reciting or chanting, until it `sprouts', then it continues to grow upwards and ultimately transplants into the `eternal spiritual garden'. A comparative study of sacred chants suggests that Shintoist, Buddhists, Brahmin, Muslim and Hebrew sacred chants reveal a striking similarity to one another **[236]**.

The shloka conveys that `life, complexion, strength, health, enthusiasm, glow (luster of skin), structure, immunity, tissue, metabolic fires and the life force - are all good if the agni is good' **[237]**.

Agni within and without the body is responsible for life and is therefore referred to as fire of life. Thus Agni or Fire plays an important role in generating the right atmosphere. Fire purifies and hence yagnas performed with the right traditional material contain natural aromatic and medicinal substances. These yagnas have become important part of our religious and spiritual practices since time immemorial. It generates a feeling of well being and improves the environment.

The post Samhita period known as Brahmanas lays emphasis on the sacrifice / offerings (yagna / agnihotra) as the main practice to obtain God's favours, the best known being Shatapatha Brahman and Taittiriya Brahman. Sacrifices consisting of fires of scented wood were offered in the temples of Brahma, Vishnu and Shiva and fed with aromatic gums and leaves of sacred herb `rusa' (*Andropogon nardus*) **[238]**.

The materials used in havan-samagris include wood from mango tree, sandalwood, butea tree (palash), deodar, ficus (peepal) along with musk, camphor, nutmeg, mace, cardamom, guggul and cinnamon. In addition to these, there are well known medicinal herbs that are included in the samagri such as turmeric, licorice, shankhapushpi, baheda, brahmi, and saunth. Vedic and Puranic literature has mentioned all these plants **[239]**.

As referred to earlier Gandhasara by Gangadhara gives a glossary devoted to Aromatic ingredients (Gandhadravya) classified into different vargas or class

Attars in Aromatherapy find a special place based on an understanding of these classifications

- 1. Leaves-Basil etc.
- Flowers-Saffron, Champaka.
- Fruits- Poppy, Nutmeg, Cardemon
- Barks-Bark of cinnamon tree etc.
- Woods- Sandal wood
- Roots - Nagarmotha.Vala, Jatamassi etc.
- Exudation from plant -- Camphor etc.
- Organic products- Musk, Honey etc.
- Leaves-Basil etc.

And this eight fold classification is in keeping with modern concept of Aromatherapy which visualizes effects of essential oils from different parts of the plants.

- Flowers → sedating and relaxing

- Resins and barks → heating and make body fluids move.
- Leaves → cooling and close to the haemoglobin structure
- Roots → grounding and help develop confidence
- Fruits → growth oriented and produce an expanding and stimulating effect.

Aromatherapy can best be explained in the following statement:

A comparative analysis of Aromatherapy with essential oils and Aromatherapy with Attars

Understanding essential oils -- (a scientific analysis)

Till early 1900's essential oils were the strongest medicine available a shift began with the discovery of coal –tar derivatives and beginning of pharmacology and allopathic medicines. The father of aromatherapy is Dr. Rene Maurice Gattefosse a French chemist. In his private lab he experienced a smoothening effect to burns on his hand on immersing it in a container of Lavender oil. Thereafter began his journey in discovering the therapeutic benefits of essential oils. In 1937 he published the book "aromatherapy". From here the work extended to treating soldiers in the second world war by Dr. jean Valnet who published the book Aromatherapy Treatment of illnesses by Essence of Plants. He trained 1000 French physicians in its practice. Margarite Mallory further enhanced its use in massage therapy and skin care in England. American Aromatherapy Association was founded in 1987 by Victoria Edwards, Kurt Schnaubelt and Marcelle Lavabre which was further popularized by Robert Tisserand.

Essential Oils are plant derivatives which are aromatic by highly volatile. Some researchers believe that they are the life force of the plants. Chemically the constituents are alcohols, aldehydes, key tones, phenols, terpenes, sesquiterpenes, ethers, and esters. Their contribution to plants lies in assisting growth, reproduction, pheromones to attract insects for pollination, as defense mechanism to protect the plants from predators or bacterial, fungal and viral infection. Herbs have a high concentration of essential oils whereas flowers are mildly scented.

The pathways through which essential oils work on the body help to metabolize its effect. Firstly they penetrate the epithelial tissues i.e. the skin, nasal passage, lungs and the gastro-intestinal tract. Having been absorbed into the surface layers they penetrate into the circulatory system and get delivered to the various parts of the body, beneficially impacting them to stimulate, sedate or relive spasm. The third stage of the pathway is elimination of the residue either by the lungs such as the components of eucalyptol in eucalyptus oil or terpenes in juniper oil by the kidneys or rose oil which when extracted by the liver stimulates bile production or some constituents which stimulate sebaceous glands and by perspiration restore the acid mantle of the skin by balancing its PH. However the most profound effect is through the sense of smell as vapours stimulate the olfactory bulb and the olfactory nerve to transmit nerve impulses to the limbic region to activate the hypothalamus and there the pituitary gland to affect the endocrines and stimulate production of hormones. These hormones control appetite, sex, body temperature, memories, body clock and other function. These messages reach the neo-cortex for stimulating intellectual activity and conscious thoughts and reactions.

Skin care has gone through significant changes over the last few years wherein it is not just a question of striking a balance between personal hygiene, minimum use of cosmetics, physical exercise and emotional stability. We are aware that the skin is situated at the inter-face between the body and the environment hence its primary role is of protection of the internal organs and regulation of body temperature. The three distinct layers of the skin—Epidermis, dermis and hypodermis protect the body from sunlight radiation, infection and

maintain water balance. Each of the layers has a specific role in terms of function and maintenance of the health of the skin.

Blending of Oils for the perfect end product

It is important to learn the art of blending essential oils in the practice of Aromatherapy. Blending is the art of putting two or more essential oils together for a synergetic effect. The important principal being to avoid the use of opposites as one will negate the effect of the other.

In other words calming and cooling oil for a sedating effect need not combine with energizing or stimulating oils. It is interesting to note the French method of oils as it divides the oils into two axes of opposite qualities---Left to right it places narcotic to stimulating oils and top up to down it places fresh and clean to sultry oils. An understanding of top, middle and base note also becomes mandatory in blending oils. So while blending all possibilities are worked together to generate the best understanding of the product and for the purpose for which it is being blended to work synergistically.

Understanding Attars -- (experiential)

Attars are a finished aromatic product and can be scientifically explained as a hydro-distillate of flowers and /or herbs and spices/baked earth fixed on sandalwood oil. Various oils when fixed on sandalwood have a longer stability and are well synergized. This is because maturing and blending is procedural. Unfortunately being substituted with cheaper substitutes such as liquid paraffin they become a cause for concern in the practice of Aromatherapy.

Even before the Industrial Revolution and later the practice of Aromatherapy that fascinated the western world, Indias' proficiency with a mastered product called attars was already in place.

The by-products of attar industry is called 'Gadd' and is highly fragrant. It is used used to make incense sticks, dhoop sticks, hawan material, hookka incense. Rose water, gulkand and essences for beverages are also allied industries which can in turn complement the practice of Aromatherapy.

Attars have a very private and personal area of command as its fragrance can be experienced by the user alone without exuding into the surroundings. Hence it can be inferred that following the ayurvedic principles of treatment, if attars are used along the lines of Doshas, results could be of the advantage of the user—cooling attars like Mitti Ka Attar, Khus, Rose or Kewara could be of benefit to those with Pitta Dosha, Hina and Shamama for those with Kapha Dosha and Vat Dosha.

Attars and essential oils have a profound effect on the mind and body. "We are privileged to be" entrusted with the care and feeding of the most extraordinary and complex creation in the universe." It is "Home to ----- personality ---- houses------ cherished memories and future hopes. It orchestrates the symphony of consciousness ----- purpose and passion, motion and emotion."

Irfan Habib in his analysis in Technology in Medieval India c.650-1750AD reports that P. C. Ray's History of Hindu Chemistry by its citation of Sanskrit text on distillation suggests an early medieval date which was further reinforced by archaeological excavations of ancient stills from Taxilla by John Marshall and A. Ghosh and later by Raymond Allchin who unearthed stills from Shaikhan Dheri (Charsadda, NWFP, Pakistan). They have been titled by Needham as Gandhara stills dating to 150 BC—150 AD. He also suggests that probably modifications were introduced in Italy in 12 th century by addition of the Moore's Head, as a water container was added in the main still, which had a concave spoon like inverted roof with an annular rim for collection of the distillate.

Historical understanding of Gandhdravya and its identification with Essential oils of flowers, leaves, roots, barks and fruits which have asimilar use in the making of Attars. Visits were

made to factories making Dhoops or incense sticks and the Rathore group is doing good business for the last 40 years. Pusparaj Jain of Pragati group is skeptical about the use of attars as a luxury good as people prefer cheaper options such as Deos which are easy to use and are heavily fragrant.

To promote Aromatherapy with Attars

Need for scientific analysis and much needed R and D. Manoj Awasthi a senior citizen and photographer by choice was convinced that the attar industry has suffered in the absence of research and development. In contrast the western world has done abundant work on essential oils to give credibility to its products in terms of evaluation and analysis at R&D centres with recognition, export policies, creation of international bodies for assessment and other regulatory bodies for maintaining standards. Similar work is missing on attars. In spite of a universal acceptance that attars can be looked upon as the older cousin of essential oils and is unique to Indian culture this area of work is totally neglected.

Scientific study of attars is a crucial and urgent need of the time and must begin as early as possible.

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Photo Album

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Separating Attar from water</td><td>Oil/ Attar floating in water</td></tr>
<tr><td colspan="2">  </td></tr>
<tr><td colspan="2">Mehndi Flowers used in making mehndi attar</td></tr>
</table>

Section V : Conclusion

Relevance of this research can draw its lessons from Raghavan's *Fault Lines* wherein we begin to start thinking about why we need to preserve the traditional methodology of attar making before it is too late. **This methodology has its benefits on a number of grounds ---- availability of the appropriate technology, generations of experience, time tested formulae, raw materials, skilled and semi-skilled labour in allied activities, source material in terms of data and linkages, market information based on demand and supply and giving back to the city what it is losing by default.**

A city with a population of one lakh has nearly one fourth its inhabitants directly or indirectly linked with attar or perfumery products still remains to be the perfume city of India. It needs intervention for revival of its unique products in the global market. The city has grown to become a district in 1997.

The diminishing demand is due to declining market for the original product as those who patronized attars have found other alternatives and substitutes. Those in business have also moved to better and profitable options. Therefore the need arises to document the status of the industry today urgently and also make it competitive.

Asgar Ali Mohammad Ali, the acclaimed perfumers for more than one and a half centuries in Lucknow since 1837 with their factory in Kannauj, Aligarh, Indrachi in Orissa have only memories to live with as their business closed in 1981. The visit to Hina Building in Kannauj was nostalgic for the entire family as they together reminisced their days of glory all over the world as Mr Istifa Khan exported attars to the European world in 1920s and Istifa Manzil was constructed at Madina which is a hotel today. Mohammad Ajmal and their sons Mohammad Rashid and Mr Salim informed that their shop in Chowk, Lucknow had been inaugurated by the Nizam of Hyderabad and how they designed attars with titles in honour of people such as Marhub Usmania or Nizam Nadan Mast. Mr Salim is a leading lawyer of

Kannauj and his brother is a Unani doctor in the city. They have a small perfumery shop just outside their house in Kannauj named differently as Mohammad Aslam perfumers. A visit to their factory site down the same road was a sad witness of the days gone by. A huge area which was bricked up in a cout case for the last thirty years for as we photographed the dilapidated structure from outside a tall middle aged man came charging at us not to photograph the dead structure as it was disputed. We managed one photograph but thereafter withdrew from the site. People around informed us that it was a very prosperous set up and all costly equipment is lying inside in a degenerate condition. It was saddening but true.

There was a ray of hope that emerged from an interaction with Ms Swapnil Pathak daughter of the famous perfumery house in Kannauj Munnalal and sons---having done her B. Tech. from Pune in Maharashtra she has decided to go back to Kannauj and do a PG Diploma with FFDC in Aroma Technology. On being asked if she has something on her mind for the attar industry she gave a very heartening answer to communicate that she has lots in terms of thought but needs to be given direction. She will wait till she finishes her Diploma and then set into motion. We need many more such youngsters to revolutionize this thought. She had two other younsters fro Farukkhabad and Meerut doing the course. We need such students from all over the world for such courses at FFDC.

Principal Director FFDC Shri Shakti Shukla in an interview confirmed that some efforts have been made to initiate revival of the attar industry but response of the people of Kannauj was not very encouraging to accept developmental initiatives. He outlined three major initiatives ---The first was in 2005 when In collaboration with Essential Oil Association of India and FFDC a two day workshop was organized in Kannauj and Kanpur. Of the 350 participants from all over India there were only 50 from Kannauj. The second was the filing of an application for a GI number in 2009 by the Export Promotion Bureau, being the main applicant and Attars Perfumery Association being the co-applicant with quality certification to be done by FFDC as the technical advisor. The third initiative was the packaging workshop in 2010 which received minimal participation by just thirty participants from the

attar manufacturers. He rightly believes that the industry can be revived if attar manufacturers of the city change their approach and begin to view their unique position at an international level. They need to be transparent and accept the challenge at the global level. The industry must accept practices relevant in maintaining environmental and health standards for both Fragrance and Flavours.

FFDC is an asset that the government of India and Government of Uttar Pradesh have initiated with UNDP support in 1993. We need to speed up new initiatives in terms of research, development, academics, industrial collaboration and building fair practices. It is visualized that they should collaborate with the ministry of tourism to hold attar festivals in Kannauj and sell Kannauj at 'India festivals' in Europe. Tourists visit Scotland to see distillation of scotch likewise international tourists can be lured to keep Kannauj on their itennerary to capture the fresh breath of aroma distillation. It is imperative to be innovative at this juncture for this is a major economic source waiting to be exploited.

Earth summits and pursuance of the millennium development goals have become a necessity because of one major reason that the worst affected are those traditional set-ups which are dependent on local expertise and availability of greens as the major raw material ingredient. Land has become the most sought after commodity and fast growing infrastructures will soon obviate the existence of such small and valuable cultures of the past. They continue to be most vulnerable. It is hoped that the research thus undertaken could be the starting point for further government intervention, to provide a safety net and make provisions for promoting and expanding the economic value of a traditionally valued resource with established benefits.

There is some related work by Shakti Vinaya Shukla, Nadeem Khan from FFDC, GOI have worked on the chemistry of essential oil and attars. Christopher Mac'Mahon, Ramakant Harlalka and Dr. Maheshwari who have worked on the various processes of extraction for essential oils and attar making.

Whereas International organizations like British Society of Perfumers (BSP), International Fragrance Association (IFRA), The Fragrance Foundation USA, Fragrance Material Foundation (FMA), American Society of Perfumers (ASP), Women in Flavour and Fragrance Commerce (WFFC), Natural Oil Research Association (NORA), European Flavour and Fragrance Association (EFFA) etc. have contributed to international research in essential oils.

Thus, the research has been a scientific analysis to understand, establish and promote the efficacy of the various processes for essential oils. Results or conclusions of this research have been to trace the changes in processes so as to initiate innovative and effective methodology, in combination with the use of cheaper raw materials. This had made it possible to make economically viable products which were saleable and affordable by a large community of consumers.

The attar industry too requires similar inputs for regeneration and thereby survival.

On my arrival at FFDC on 7th Nov. 2012, I was surprised to find tremendous human activity in the wilderness of Kannauj. On further inquiry I was informed that the LIFE O.K. unit, a new but very popular Television channel was in FFDC for an event in Kannauj. I was not satisfied by the answer and met the event manager to enquire as to why and how the event was decided to be held in Kannauj, for such events are held to increase the TRP and doing them in crowded cities is a better option. I was informed that a survey was undertaken and hitherto neglected small cities and townships were being selected for such events. The event drew a crowd of 12, 000 people much more than an expected figure of 7-8000. I was unable to relate this feedback to my thoughts as I remain convinced that it was the fragrance of ‘attars’ that had lured ‘Mahadev’ to this aroma city which is intimately connected to religious sentiments of both Hindus and Muslims since the time of Harshavardhan and thereafter. It is also interesting to note that an expressway will soon connect Lucknow, the state capital with the historic city of Agra through five major historic destinations ---and one of them is Kannauj the ‘Khusboo city’.

What is even more interesting is the fact that in the long history of Modern India under the British there was not a single city untouched by the proselytizing activity of the missionaries and Farrukhabad was their stronghold. Then how was it that they failed to reach Kannauj? It remains to be a city only of the Hindus and Muslim brother-ren with not a single church or a gurudwara. I was informed that lately a Sikh family has shifted to Kannauj and made a gurudwara at their residence.

We must accept that fragrance and aromas occupy a central role in the evolution of humanity and are very intricately woven with the culture of any society for various religious, social and medicinal practices. A terracotta vaporizer of the mature Harappan period is a prized possession of National Museum, Delhi. This is an 8x10 inch artifact which finds a striking technical and structural similarity with an artifact retrieved from a site in Syria. Both these artifacts are, in turn, precursors to the vaporizers used today. The techniques remains to be the same of placing a small fire at the bottom of the vaporizer which heats the aromatic ingredients placed in a cup like section at the top of the vaporizer. This gently leads to the release of fragrance from the ingredients and as essential oils are volatile, the aroma is released into the atmosphere to exude fragrance into the surroundings.

Essential oils having medicinal and therapeutic properties to treat and cure continue to be of immense value since ancient times. With increased application of knowledge and enhanced methods of obtaining this essential and potent extract from plants, there is immense activity in their varied applications and uses. Since ancient time, this knowledge has continued to grow and evolve with the passage of time and attars remain to be the valuable source of this understanding which is substantiated by the modern day research on essential oils.

The most important deliberation in this work is the fact that the use of essential oils and aroma ingredients had been the prerogative of the rich and the more fortunate as is indicated throughout this work. However, with the increased availability of this plant

produce and its use in daily consumption products by man, it has become a product of mass use. The only fear that can overtake man is its adulteration and scarcity in the future, if players in the agricultural sector refuse to participate as providers to the industry. However the use of aromatic products in our daily lives continues to be all pervasive since the ancient times.

Attars need to recreate a global market by adopting modern means to do so, such as attractive packaging and marketing via the e-media, research in international institutes with clinical trials and profuse publicity in international journals, organizing international festivals, fairs and seminars to promote tourism for selling India's aromatic culture-- attar. It is imperative to open the industry to competition and compel sale in open market with fair deals and payments of taxes wherever necessary. Above all, Kannauj needs institution building and capacity building at the national level perceiving its role in the promotion of cultural diversity. If possible, lets work for the UNESCO stamp for the city of Kannauj and preserve the 'Khusboo City.' It may just help us revive the extinct moulashri attar or the fabled Jasmine scented sesame oil.

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Asgar Ali Mohammad Ali all time favourites of Nawabs of Awadh and Hyderabad can only recollect their glorious past now. Their sprawling residence in Chowk, Lucknow (above no longer there) and present residence at Kannauj. Salim Bhai is a criminal lawyer and his brother manages the small shop outside their house in Kannauj. Also the image of their factory closed and in a dilapidated condition in Kannauj since 1981.

Attar bottles for finished product	Leather bottles for refining attar

Aromatic Musk Deer at RK perfumers

At Gopal Saini's farm—Son a software Engineer in Mumbai and daughter doing Pharmacy in Pune

Musk Deer at R K Perfumers

A New Cultivar of Sandalwood from Bangalore which can be harvested in 15 yrs as against the 80 yrs gestation period of the traditional variety. The sandalwood gardens ot FFDC Kannauj are now 3 yrs old. The oil is not yellow as in the case of traditional variety but white in colour.

You gave us life and aroused kings from their stupor,
So they bathed in fresh sandalwood water and applied paste to their war equipment as a ritual.
Yes, we were very wasteful and thoughtless in our use of a valuable natural resource,
So we suffer the consequence and have none for use today or tomorrow.
Now we compete with nature with tissue culture, hybrid plants or clones
Till how long will we continue with this endless competition?
Not for eternity I am sure!!!!!
JYOTI MARWAH for SAARC Project on Diminishing Cultures of South Asia 2011-2012