

**National Workshop on
“CSIR-Aroma Mission: Value Addition of
High Value Aroma Ingredients
For Socio-Economic Upliftment & Rural Prosperity”**

March 08, 2018



ORGANIZED BY



CSIR-IIIM

**CSIR-Indian Institute of Integrative Medicine
Canal Road, Jammu Tawi-180001, Jammu and Kashmir, India.**

ABOUT FOUNDER



Colonel **Sir Ram Nath Chopra** CIE, IMS (17 August 1882 - 13 June 1973) was an Indian Medical Service officer and a doyen of science and medicine of India. He is considered the "Father of Indian Pharmacology" since he was the first to establish a center of study and research in pharmacology in India, at the Calcutta School of Tropical Medicine.

Colonel R. N. Chopra was commissioned a lieutenant in the Indian Medical Service on 1 August 1908 and promoted to captain on 1 August 1911. He was promoted to the temporary rank of major on 7 May 1919 and confirmed in the substantive rank on 1 August 1920, (back-dated to 1 February 1920). For about 12 years he worked as young IMS officer first in East Africa and then in Afghan war.

In 1921 he joined as First Professor of Pharmacology in Calcutta School of Tropical Medicine to teach PG students, became director of the institution in 1934. Along with this position he also chaired the Pharmacology at Calcutta Medical College to teach UG students. His efforts in developing the Pharmacology laboratory at School made it a well equipped best laboratory equal to those in west. He served the school till 1941 (i.e., for 20 years). After retirement in the same year the Government of Jammu and Kashmir appointed him as Director of Medical Services and then appointed as Director of Drug Research Laboratory (Now CSIR-Indian Institute of Integrative Medicine) where he served the lab till 1960.

His contribution is recognized in bringing modern pharmacology from the traditional materia medica. He is well known for his Experimental Pharmacology. He enormously worked in the area of General Pharmacology and Chemotherapy. Most particularly his work areas covered studies on Indigenous drugs covering their chemical composition, *In vitro* & *In vivo* tests for the active principles, biochemical & biophysical changes in mammalian organism; surveys on drug addiction and Drug analysis.

About CSIR-Indian Institute of Integrative Medicine, Jammu.



CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM) was established in 1941 as a research and production centre, known as Drug Research Laboratory of Jammu and Kashmir State and was later taken over by Council of Scientific & Industrial Research (CSIR) of Govt. of India in December 1957 as Regional Research Laboratory, Jammu. In view of its core strength in natural products based drug discovery, the mandate of Institute was redefined in 2005 and its name changed to Indian Institute of Integrative Medicine (IIIM). The current mandate of IIIM is to discover new drugs and therapeutic approaches from Natural Products (plant and microbial origin), enabled by biotechnology, to develop technologies, drugs and products of high value for the national and international markets.

In order to bring a decisive and transformative change in the rural economy, market dynamics and growth opportunity, CSIR-IIIM, Jammu has been conceptualized a mission, which aims to provide end-to-end technology and value-addition solutions across the country for aromatic plants at a sizable scale. This mission will bring transformative change in the aroma sector through scientific interventions in the areas of agriculture, processing and product development for fuelling the growth of aroma industry and rural employment.

About CSIR Aroma Mission: Catalyzing Rural Empowerment through Cultivation, Processing, Value Addition and Marketing of Aromatic Plants

In last six decades, the Council of Scientific and Industrial Research (CSIR) has contributed significantly in creating essential oil-based aroma industry in India, which has greatly helped Indian industry, farmers, progressive growers and entrepreneurs in job creation and income-enhancement. Several CSIR institutions have contributed to the high-end science and technology to enable this success. However, the growth opportunities in these sectors have not yet been fully utilized in the global markets. So far, individual CSIR labs have been contributing independently in different parts of the country towards achieving global leadership status in the aroma sector. In order to bring a decisive and transformative change in the rural economy, market dynamics and growth opportunity, a mission has been conceptualized which aims to provide end-to-end technology and value-addition solutions across the country at a sizable scale. Aroma mission will bring transformative change in the aroma sector through scientific interventions in the areas of agriculture, processing and product development for fuelling the growth of aroma industry and rural employment. This mission aims to achieve following outcomes:

- a) Bring about 5500 hectares of additional area under captive cultivation aromatic cash crops particularly targeting rain-fed /degraded land across the country.
- b) Provide technical and infrastructural support for distillation and value-addition to farmers/growers all over the country.
- c) Enabling effective buy-back mechanisms to assure remunerative prices to the farmers/growers.
- d) Value-addition to essential oils and aroma ingredients for their integration in global trade and economy.

Aroma mission will also play a dominant role in the production and processing of aroma products for the international market. The mission programme focuses on aromatic crops as a source of essential oils and aroma chemicals for an end-to-end positioning of R&D in an outcome-driven mode to cater for the domestic and international needs of aroma, flavours and fragrances. In this programme, CSIR with its dedicated laboratories working in the area of aromatic crops will synergise with other public and private enterprises to pursue deployment of already developed technologies for the benefit of farmers and industry. The mission aims to develop and disseminate the aroma related S&T developments to reach to the end users/clients of CSIR i.e., the farmers, the industry and the society, leading to business opportunities, rural development, life-quality enhancement.

Following verticals have been identified in CSIR aroma mission.

Verticals	Activities proposed	Deliverables
Vertical A: Development of superior varieties and their agro-technologies and assessment of their suitability for specific agro-climatic regions.	<ul style="list-style-type: none"> • Development of superior varieties possessing desired traits like higher yield potential, source of novel/in demand aroma chemical, early maturing, suitable for stressed/degraded lands, low irrigation requirements/drought tolerance etc. • Multi-locational assessment for their suitability in different agro-climatic regions. • Agro-technologies including post harvest optimization for different agro-climatic zones. 	<ul style="list-style-type: none"> • High-yielding varieties/chemotypes of selected crops would be developed and released for commercial cultivation. • Region- and environment specific genotypes of selected crops would be identified. • Agrotechnologies for selected crops would be optimized for different agro-climatic zones as well as for stressed environments.
Vertical B: Promotion, cultivation and processing of aromatic crops, To enhance area under selected aromatic crops along with enabling interventions including setting up of distillation units and catalyzing setting up of cooperatives for marketing of the produce.	<ul style="list-style-type: none"> • Selection of crops (based on the demand of their essential oils) to provide higher economic returns to the farmers. • Multiplication of the planting material of the selected crops. • Selection of clusters of farmers and promotion of cultivation of these crops to newer suitable areas to enhance area under cultivation of selected crops. • Setting up of distillation units, and catalyzing setting up of farmers cooperatives for marketing the produce. 	<ul style="list-style-type: none"> • Selection of crops providing higher benefits to the farmers with ability to grow well under stressed conditions • Ensuring availability of quality planting materials to the farmers. • Increasing the area under cultivation of aromatic and medicinal crops upto at least 5500 hectares.
Vertical C: Value-addition of aromatic crops (high-end aroma chemicals and products).	<ul style="list-style-type: none"> • Process optimization for fractionation to isolate high value aroma molecules & modulation of fragrance constituents by eco friendly chemical/biochemical intervention in classical distillation process. • Development and optimization of chemical transformations and derivatization of aroma molecules. • Utilizing essential oils/aroma molecules for products. 	<ul style="list-style-type: none"> • Process development for isolation of aroma chemicals in high-demand. • Chemical/Biological transformations/derivatizations of aroma molecules. • Essential oil/aroma chemicals based products.

Vertical D: Skill development activities.

- Awareness programmes in different states/region of the country.
- Skill up -gradation programmes on cultivation and processing of medicinal and aromatic plants.
- Advanced training on value addition of the Medicinal and Aromatic Plants produce and quality assessment.
- One-day awareness programmes for farmers and growers.
- Training programmes of 2 -3 days on cultivation and processing technologies.
- Advanced training of 1 -2 weeks on the processing technologies.
- Hands on training on the fragrance quality of aromatics.

Vertical E: Intellectual property generation, valuation and management.

- Technology or IP landscape, Competitive Intelligence, Market search reports for the shortlisted leads, pertaining to aromatic and essential oils.
- An overview on the existing information related to cultivation and agronomic improvement of the shortlisted medicinal and aromatic plants.

Vertical F: Entrepreneurship development/Spin-offs.

- To build entrepreneurship among farmers, technically skilled and trained unemployed youth and women.
- Employment generation through entrepreneurship development.

Vertical G: Business development.

- Establishing business linkages with National and International essential oil companies.
- Providing fair price to the farmers and quality produce to the industry.
- Establishment of business linkages to make India as a leading essential oil hub internationally.

Vertical H: Making public aware of mission activities and achievements using appropriate interface.

- Development of android app for dissemination and connecting to the public.
 - Short video clips for demonstrating the success stories under the mission.
 - Dissemination through social media (portals, youtube, facebook, whatsapp, twitter, etc).
 - Creating public awareness and dynamic database of farmers, area and type of aromatic crops cultivated by each farmer and buyers of the essential oils and the market price of each essential oil.
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Area of about 5500 hectares brought under cultivation by the interventions of CSIR in aroma mission will further catalyse the cultivation of MAPs in about additional 60,000 hectares. The mission will promote cultivation of aromatic plants, which are in great demand by aroma industry. This will provide substantial benefits to the farmers in achieving higher profits, utilization of wastelands and protection of their crops from wild/grazing animals. Following nine high value aroma crops have been identified by CSIR-IIIM for their cultivation on 2000 hectares of land under aroma mission.

S.No.	Crop	Characteristic features	Type of area	Extension activity	Total area (acres)
1	Lemongrass hybrids [CKP-25], [CPK-F2-38 Kalam]	Citral (a&b) (80-85%)	Irrigated/rain-fed areas	J&K, Punjab, Haryana, UP, Rajasthan, Gujarat, Uttarakhand, Maharashtra, MP, Chhattisgarh, HP, Tamil Nadu	1250.00
2	Rosagrass [RRL(J) CN-5], Himrosa [IIIM (J) CK-10]	CN-5: Geraniol (65-75%), Geranyl acetate (10-20%) CK-10: Geraniol (75-83%), Geranyl acetate (10-15%)	Irrigated/rain-fed areas	J&K, Punjab, Haryana, UP, Rajasthan, Gujarat, Maharashtra, Uttarakhand, MP, Chhattisgarh, Tamil Nadu	1250.00
3	Lavender <i>Lavendula officinalis</i> [RRL-12]	Linalool (19.2%), Linalyl acetate (20-45%), 1,8 Cineol, Borneol, Levendulyl acetate	Rain-fed, sub-tropical/temperate regions/snow bound areas	J&K, North Eastern States	250.00
4	Rosemary <i>Rosmarianus officinalis</i>	p-Cymene (44.02%), Linalool (20.5%), gamma-Terpinene (16.62%), Thymol (1.81%)	Rain-fed/irrigated land without water logging in soil	J&K, North Eastern States, HP	93.75
5	Jammu Monarda [IIIM(J)MC-02]	Thymol (62-70%), Carvacrol (2-6%), p-Cymene (12-20%), r-Terpinene (14-20%)	Rain-fed areas/irrigated lands	J&K, Punjab, Haryana, UP, Rajasthan, Uttarakhand, HP, North East States	1250.00

6	<i>Salvia sclarea</i>	Linalyl acetate (35.9%), Germacrene D (13.3%), Linalool (12.8%), Sclareol (9.4%)	Rain-fed area/ irrigated lands	J&K, North Eastern States
7	<i>Mentha</i> species <i>Mentha longifolia</i> [RRL(J)ML-4], <i>Mentha piperata</i> [RRL(J) MT-94]	Menthol (70-82%), Menthone (25%), Linalool (70-80%), l- carvone (60-72%)	Rain-fed area/ irrigated lands	J&K, Punjab, UP, Uttarakhand, Tamil Nadu, Haryana
8	<i>Ocimum</i> species [RRL OG-14], [RRL OB-15]	Linalool (70-75%), Methyl cinnamate (80- 85%), Eugenol (80-85%), Methyl chavicol (80- 85%), Elemien (65-70%), Thymol (65-75%)	Rain-fed/ irrigated lands	J&K, Uttarakhand, Maharashtra, MP, Haryana, HP, Tamil Nadu
9	<i>Pelargonium</i> <i>graveolens</i> Geranium [PG- IIIMJ-101]	Citronellol (42.5%), Geraniol (19.90%)	Irrigated lands	J&K, North Eastern States

Aforesaid crops will provide an assured benefit to the farmers viz farmers from Vidarbha, Bundelkhand, Rajasthan, Gujarat, Orissa, Andhra Pradesh, Bihar, J&K and North Eastern region, which are frequently affected by frequent episodes of weather extremes and account for maximum suicides. An additional 700 tons of essential oil worth Rs. 110 crores will be produced annually for perfumery, cosmetics and pharmaceutical industry. The mission will put a mechanism in place for timely farm advisory and interaction with scientists and industry representatives for ensuring optimal productivity and a fair price to the produce, which will help in increasing farmer's income by Rs. 30,000 to 60,000/year. About 45,000 skilled human resources capable of multiplying quality planting material, distilling, fractionating and testing the quality of essential oils, and in manufacturing commercial herbal products, will be developed. Besides that more than 25,000 farming families will be benefitted and an employment of more than 15-20 lakh mandays will be generated in rural areas. The mission will reduce the import of essential oil and act as enabler to become leading exporter of at least some essential oils.

***About The Workshop:
CSIR-Aroma Mission: Value Addition of High Value Aroma Ingredients
For Socio-Economic Upliftment & Rural Prosperity.***



The aim of this workshop is to initiate a brainstorming session for devising the strategies for value addition of aromatic plants that can help to empower farmers and promote entrepreneurship in rural areas. It is important to build demand for essential oils by developing essential oil based formulations and products to promote their business. The workshop will help to devise the possibilities for promotion of the business of aroma products in MSME mode. It will not only contribute in enhancing the number of self-employed entrepreneurs, it will also contribute in employment generation and eventually building demand of essential oils for sustainable cultivation of aromatic crops. It is proposed to discuss several strategies to help the Aroma Mission Scientists to

understand the ways and possibilities for value addition of essential oils and exploring the same for producing value-added products. The value added products will build a complete ecosystem in a cluster of villages from cultivation, to distillation of essential oils followed by producing value-added products related to MSME activities. Discussions will be held to find ways that can support the farmers/entrepreneurs in terms of availability of infrastructure facility and technical know-how support at CSIR-IIIM to increase the number of MSME entrepreneurs and hence sustained demand for the production of essential oils through aromatic crops cultivation for product development.

Confirmed Speakers:

1. **Dr. Ram A. Vishwakarma**
Director
CSIR-Indian Institute of Integrative Medicine
Canal Road, Jammu Tawi
2. **Dr S.V. Shukla**
Fragrance & Flavour Development Centre (FFDC)
Ministry of MSME, Govt. of India
G. T. Road, Makrand Nagar, Kannauj – 209 726 (U. P.)
3. **Ms Nivedita Assar**
M/s Mohini Agency Industrial Fragrances (I) Pvt. Ltd
D-222/25 TTC Industrial Area
Village Shiewane, Navi Mumbai-400706
4. **Mr Ajay K. Jain**
Virat Exports Pvt. Ltd. 23/3, E
East Patel Nagar, New Delhi-110008
5. **Dr. Ramakant Harlalka**
Nishant Aromas, Local Business Park, Unit No. 604,605,606
Ram Baug, Opposite Dal Mill Compound
Off S.V. Road, Malad (West), Mumbai-400 064
6. **Dr. R.L. Gupta**
Menthol and Allied Products
F-26/1, Buland Shahar Road, Industrial Area, Site-I,
Ghaziabad-201009 (UP)
7. **Dr. Sitaram Dixit**
Mahavir Trinkets 'C Wing' Co-operative Housing Society Limited,
307-310, 3rd Floor, Off LBS Road, Behind Huma Cinema,
Near Railway Station, Kanjur Marg (W), Mumbai 400078.
8. **Er. Rajneesh Anand**
Scientist 'G' & Head, Instrumentation Division
CSIR-Indian Institute of Integrative Medicine
Canal Road, Jammu Tawi

Registration Form:

**National Workshop on CSIR-Aroma Mission /Brainstorming Session
"Aroma Mission, Value Addition for High Benefits For Rural Empowerment"
8th March, 2018**

Name: _____

Gender: _____

Organization: _____

Designation: _____

Registration Category: Faculty/Post-Doc Fellow/Ph.D. Student/Industry Delegate

Address: _____

City: _____

State: _____

Pin Code : _____

Email : _____

Mobile/Tel No. : _____

Signature of Candidate

Payment:	Faculty Members	:	Rs 2000/-
	Post Doctoral students	:	Rs 1000/-
	Ph.D. Students	:	Rs 500/-
	Industry Delegates	:	Rs 10000/-

Payment Mode:

Bank Draft/E payment as per below details

I. Accounts No.	:	30186230982
ii. Name of Bank	:	State Bank of India, Main Branch, Hari Market, Jammu
iii. Designation of the Account Holder	:	DIRECTOR IIIM JAMMU
iv. IFSC Code of the branch	:	SBIN0000657
v. MICR Code of the branch	:	180002001
vi. E-mail address of the Account Holder	:	director@iiim.ac.in
vii. Type of Account. Saving/Current	:	Saving Account
viii. Phone Number of Bank	:	0191257408
and Address of the Bank	:	State Bank of India, Main Branch, Hari Market, Jammu, J&K

Hotel Information at Jammu Tawi:

- (i) Hotel Lords Inn (<http://www.lordshotels.com/lords-inn-jammu>)
- (ii) Hotel Ramada (<http://www.ramadajammu.in>)
- (iii) Hotel Fortune Inn Riviera (<https://www.fortunehotels.in/jammu-fortune-inn-riviera>)
- (iv) Hotel Hari Niwas Palace (<http://hariniwaspalace.in>)
- (v) Hotel Radisson Blu (<https://www.radissonblu.com/en/hotel-jammu>)

Room Tariff Ranges Between: Rs. 2500 to 5000 /- Per Night

Workshop Secretariat:

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