



Summary Activities & Achievements

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WORKSHOPS

1. "Stakeholders' Meet on Medicinal Plants" for Eastern Region

The workshop was organized on 10th May, 2018 at Dr. K.P. Basu Memorial Hall of Jadavpur University, Kolkata and participated by 68 nos. Stakeholders from the state of Jharkhand, Odisha and West Bengal, including State Medicinal Plants Boards, Forest Departments, Horticulture Department, Farmers, Traders, Traditional Healers, NGOs, Research Institutions, Academicians and Industry representatives. Deliberations and presentations were made by 18 Eminent experts and NMPB Officials.



Multi-dimensional discussion enhanced the knowledge base of the participants on Conservation, Cultivation, Value addition and Marketing of Medicinal plants. They become aware about the schemes, planning, techniques and their responsibility. The linkages were established amongst the various players in the sector in eastern region. As the medicinal plants are declining from the natural forests, the message was forecasted for the promotion of cultivation in the demanded medicinal plants which are suitable for agro-climatic condition eastern region.



2. "Stakeholders' Workshop on Medicinal Plants" in Odisha

The workshop was organized on 31st July, 2019 at Hotel Kalinga Ashoka of Bhubaneswar, Odisha. Total 135 nos. Stakeholders from the state of Odisha were participated, including State Medicinal Plant Board, Forest Department, Horticulture Department, Farmers, Traders, NGOs, Traditional Healers, Research Institutions, Academicians and Industry representatives. The programme was enriched by presentations and experience sharing of 11 resource persons including NMPB Officials.



Spectrum of discussion enhanced the knowledge base of the participants regarding Conservation, Cultivation, Value addition and Marketing of Medicinal plants by making informed decision. They become aware about the schemes, planning, techniques and their responsibility and they will be practicing the same. The stakeholders were working in isolation and they were unfamiliar with each other regarding their activities in this sector. This workshop has created a benchmark for creating network amongst all stakeholders and led towards collaborative or group level approach for the promotion of medicinal plants sector.



PUBLICATION AND AWARENESS

- RCFC published brochures in 4 languages (English, Hindi, Bengali & Odia)
- Developed Independent Website (<http://www.rcfceast.org/>) which can be accessed in English, Hindi, Bengali & Odia languages
- Participation in 23rd Sundarban Kristi Mela, Basanti, South 24 Pgs, W.B. during 20th -29th December 2018
- Participation in State level Arogya Fair during 1st to 3rd March 2019.
- Published Activities and Achievement booklet up to May 2019 for RCFC-ER
- Documented 2 success stories and converted to 4 regional languages for publicity
- Produced compendium of activities carried out by RCFC up to May 2019 with all associated details



OTHERS

- The 1st and 2nd fortnight data for January, February, March, April and May 2019 of Kolkata market have been collected and submitted to NMPB
- The 1st and 2nd fortnight data for March, April, May 2019 of Siliguri market have been collected and submitted to NMPB.
- The 1st and 2nd fortnight data for May 2019 of Berhampur market have been collected and submitted to NMPB.
- Schedule TA form of 19 Ayurvedic Companies have been collected from Director, Drug Controller through SMPB, WB.
- Pending UCs in 3 states i.e, Bihar, Jharkhand & West Bengal were constantly pursued, out of which 2 UCs in West Bengal for the Project No. Z.18017/187/CSS/JFMC/WB-01/2014-15-NMPB dated 25.09.2014 awarded to Research Circle, Directorate of Forests, Govt. of West Bengal and Z.18017/187/CSS/R&D/WB-05/2016-17-NMPB-IV A dt. 29.12.2016 awarded to Uttar Banga Krishi Vishwavidyalaya has been settled and agencies received their 2nd Instalment.
- 1 UC in West Bengal for the Project No. IEC/WB - 01/2014 dt. 25.09.2014 awarded to Badulara Desshari Society were settled and informed to NMPB
- 2 UCs in Odisha for the Project No. JFMC/OR-01/2014 awarded to Divisional Forest Officer-cum-CEO, FDA, Bonai Forest Division and Project No. JFMC/OR-03/2014 awarded to Divisional Forest Officer-cum-CEO, FDA, Baliguda Forest Division were settled and informed to NMPB.
- UCs pending with SMPB, Jharkhand and SMPB, Bihar were settled and informed to NMPB.

✚ SUCCESS STORIES

Case-1: Medicinal Plants Promotion by NEPO FPO Group

NEPO FPO Group, Krishnagar, Nadia, West Bengal is working on multiple projects since its inception on 1st April, 2015. In 2016, with the cooperation of local administration, NEPO has started the cultivation of Ekangi (*Kaempferia galanga*), and subsequently the business link was established with the potential buyers. NEPO could successfully bring 542 farmers under this cultivation project. The benefited farmers set example for others and NEPO brought 2250 more farmers under the project, and before doing the marketing of those cultivated products, SMPB came into picture to facilitate. NEPO managed to get a fund of 2 crores through SMPB in 2018-19 and facilitated to establish a market linkage with the exporters. NEPO FPO has received the farmer subsidy of Rs. 81 lakhs from MNPB through SMPB, West Bengal.



NEPO has exported 360 ton of *Kaempferia Galanga*, by making a business contract with a selected company, and in 2018-19 NEPO has successfully made a business of Rs. 6 crores 40 lakhs. In 2019-20, NEPO intended to bring 24200 farmers under this project through Medicinal Farmers Cluster Committee under the chairmanship of Mr. Abhijit Ghosh.

Case-2: Inspiring Journey of Mr. S.K. Das to a Medicinal Plants Entrepreneur

Mr. Santosh Kumar Das has established himself as a medicinal plants entrepreneur, who is involved in raising quality planting material, cultivation, primary processing and marketing by organizing farmers and establishing linkage with international market.

Mr. Das, the trained forester, has started his early career as a Forester in Odisha Forest Department and worked around 16 years. He just made a trial with commercial nursery of Medicinal Plants for quality planting materials and enter into a good business. Since then, he carried out several field trials, value-addition and marketing of medicinal plants and gradually became an Entrepreneur in the sector having the experience on cultivation and marketing of medicinal plants. Mr. Das has developed quality planting material of Gurmar (*Gymnema sylvestre*), Lemongrass (*Cymbopogon flexuosus*) and Sarpagandha (*Rauwolfia serpentina*) with the financial assistance by RCFC-ER, NMPB and proved his expertise.



As on date, he has the credit of cultivating about 500 ha of commercial Lemongrass (*Cymbopogon flexuosus*) cultivation in Mayurbhanj, Balangir, Keunjhar and other districts of Odisha and about 70 ha of Sarpagandha (*Rauwolfia serpentina*) in Mayurbhanj district of Odisha involving more than 1200 farmers with 100% marketing assurance of the products. He has reach in the domestic as well as international market including United States of America (USA) and Europe with quality products of medicinal plants origin. His total volume of medicinal plants related business has raised around Rs. 2 Crores in last financial year (2018-19).

3. Regional Workshop cum Buyer-Seller Meet on Medicinal Plants

The workshop was organized on 25th April, 2019 at Gandhi Bhawan, of Jadavpur University, Kolkata and participated by 338 nos. Stakeholders from the state of Bihar, Jharkhand, Odisha & West Bengal were participated, including SMPBs, Forest Department, Horticulture Department, Farmers, Traders, NGOs, Traditional healers, Research Institutions, Academicians and Industry representatives. Deliberations and presentations were made by 29 Eminent experts, panellists and NMPB Officials.



The cultivation of Medicinal Plants need to be promoted, as the maximum amount is collected from the forest areas. There is also a demand of proper management of medicinal plants from the point of collection, farming, marketing and value chain management to get the maximum benefit to the farmers with the active involvement of different agencies. A reasonable advancement of the medicinal plants network of stakeholders was perceived. All the participants appreciated the efforts of RCFC Eastern Region under NMPB to take up this workshop cum interaction sessions to raise awareness and knowledge base of all stakeholders.



✚ TRAINING PROGRAMMES

1. One day Training Programme on Good Agriculture Practices for Cultivation of Medicinal Plants in Odisha

The training programme was organized on 1st August 2018 at Conference Hall, CYSO, Bhubaneswar, Odisha. Total participants were 71 nos. including Forest Field Officials, Farmers, Traditional Practitioners/Healers, Traders & Entrepreneurs, NGOs, Govt. organizations, Research Institutions, Academicians and Industry representatives. The programme was enriched by presentations and experience sharing of 6 resource persons from medicinal plants sector.

The training provided information regarding good agricultural practices by selecting the right species suitable for agro-climatic region, using quality planting material, usage of organic fertilizer and pesticides, good harvesting practices and immediate post harvest activities to retain and extract the active phyto-constituents in the products.

There was a demand of proper marketing and value chain management to get the maximum benefit to the farmers with the active involvement of different agencies like TDCC, OFDC, OLM, Mart as well as online marketing hub like e-Charak, which was also taken into consideration by the experts.



2. **One day Training Programme on Medicinal Plants in Bihar**

The training programme was organized on 14th September 2018 at Govt. Ayurvedic College & Hospital, Patna, Bihar. Total participants were 79 nos. including Forest Field Officials, Farmers, Traditional Practitioners/Healers, Traders & Entrepreneurs, NGOs, Govt. organizations, Research Institutions, Academicians and Industry representatives. The programme was enriched by presentations and experience sharing of 8 resource persons from medicinal plants sector.

The CEO of SMPB, Bihar will take initiative to procure some of the low cost primary processing machineries as described in the programme to support medicinal plants cultivators in the annual action plan of AYUSH Mission. He also emphasized that the marketing of some important medicinal plants will be carried forward by the FPO formation with the already identified farmers clusters in Bihar. A meeting need to be organized with the listed 141 traders of medicinal plants in the State of Bihar regarding their demand of medicinal plants species with associated criteria. Simply by drying the value can be added and self life of medicinal plants can be increased which will also increase the bargaining power of the farmers.



3. **One day Training Programme for Promotion of Medicinal Plants in Jharkhand**

The training programme was organized on 31st January 2019 at AVN Grand, Ranchi, Jharkhand. Total participants were 105 nos. including Forest Field Officials, Farmers, Traditional Practitioners/Healers, Traders & Entrepreneurs, NGOs, Govt. organizations, Research Institutions, Academicians and Industry representatives. The programme was enriched by presentations and experience sharing of 12 resource persons from medicinal plants sector.

There was a demand of proper management of medicinal plants from the point of collection, farming, marketing and value chain management to get the maximum benefit to the farmers with the active involvement of different agencies like Jharkhand Sate Medicinal Plants Board, Jharkhand Forest Department, as well as online marketing hub like e-Charak.

All the dignitaries on behalf of the Forest Department, Jharkhand has expressed their desire to support sustainable harvesting and help farmers to acquire best planting materials whereas dignitaries from NMPB mentioned their full support through all types of information sharing and support to the SMPB, Jharkhand for fulfilling the mandate of growth in Medicinal Plant sector in an organized manner in Jharkhand.



MARKETING INITIATIVES

RCFC ER, has started working towards sustainable marketing initiatives within the designated States of Bihar, Jharkhand, Odisha and West Bengal. Snapshots of some the initiatives have been provided as follows:

- A WBSMPB initiative and facilitated by RCFC ER, NEPO FPO has started selling Ekangi to Mr. Ashok Agarwal, promoter of Edible Agro and Axil Natural India LLP. NEPO FPO collects the same from the farmers and as primary processing initiative NEPO is shorting and packing the dried material.
- Mr. S. S. Sharma of Lama Pharmaceuticals, Kolkata has been connected Mr. Avishek Paul, a Progressive Farmer and Trader of Medicinal Plants for procurement of Aloe vera pulp 500 kg per day. Mr. Avishek Paul will establish a primary processing unit to extract Aloe vera pulp with the guidance and support of RCFC-ER, NMPB.
- RCFC ER initiated preliminary discussion between Dr. Ramesh Uniyal, Head, Bioresources Development from Emami Ltd. and Mr. Krishna Prasad and his team from Medicinal & Aromatic Plant Growers' Association of Bihar. Dr. Uniyal also expressed his interest to increase their supplier base and procure some common one or two items like Amla fruits after proper quality assessment from the Laboratory of Emami Ltd.
- Visited to medicinal plant mandi/marketplace at Kolkata. Discussed with the traders and provided the information regarding e-Charak Platform. The similar initiative has been undertaken at Siliguri and Behrampur. Traders from Kolkata and Behrampur are already inducted with e-Charak user base.
- Dr. Durga Prasad Nanda from Cancer Care, Kolkata will involve in cultivation of medicinal plants in Midnapore by providing initial funding for the project. Where as members of Mugberia Gangadhar Trust, Midnapore, West Bengal would provide their land for the cultivation and raise awareness in the local area about the benefits of medicinal plants. As primary intervention they are starting with a plantation of 4 bighas of Aloe vera plantation under guidance from RCFC ER.
- Samples of Neem oil produced by the farmers of Nadia District, West Bengal has been sent to Mr. L Ramani Rao, exporter from Secunderabad.
- A good marketing network has been established during the plenary session of Buyer-seller meet on 25th April 2019 with Mr. Sandeepan Sharma, Lama Pharmaceuticals; Mr. Nirmal Saha, Emami Pvt. Ltd.; Ms. Oeandriila Banerjee, Soumi's Herbal Products Pvt. Ltd.; Mr. Srinivas Rao, Botanical Resources India Pvt. Ltd.; Mr. Ashok Agarwal, Axil Natural India LLP; and Mr. Ramesh M. Pillai, Srinivas Herbs Private Limited to capture domestic and international market.
- A number of stalls for product display and interaction with different stakeholders were installed at the venue of the Buyer Seller Meet. The initiative was supported through displaying products in stalls by SMPBs, Herbal Choice, West Bengal, Janus Life Sciences, Lama Pharmaceuticals, Rhodotion, Soumi's Herbal Products Private Limited, Nistha Herbal, Chattisgarh, Traditional Healer Association, Chhattisgarh, Regain Herbal Remedies, Jharkhand, We Marketing Pvt. Ltd. & We Care, Jharkhand.
- Soumi's Herbal Products Pvt. Ltd. has send demand for procurement of some medicinal plants to RCFC ER to connect with farmers. RCFC ER has already linked them with farmers to provide Aloe vera and Ashwagandha.
- RCFC ER has received enquiry about Citronella oil from Sulekha Works Limited and have initiated the activities to connect them with farmers and forest department.

Participation in Meetings

1. Participated in the review meeting to examine the proposed draft structure of "National Policy of Medicinal Plants on 22nd November, 2017
2. Participated in First Meeting of the Regional-cum-Facilitation Centre on 14th March, 2018
3. Organized Stakeholders' Meeting at Jadavpur University on 10th May, 2018
4. Organized 1st meeting of the Management Committee for the RCFC-ER, NMPB, Jadavpur University
5. Participated in the launch Workshop of RCFC-Southern Region, Kerala on 22nd March, 2018
6. Participated in Stakeholders' Meeting at Goa on 9th April, 2018
7. Participated in the launch Workshop of RCFC-Central Region, Madhya Pradesh on 18th May, 2018
8. Participated in One day Workshop on use of e-CHARAK and Voluntary Certification Scheme on 28th June, 2018
9. Participated in Second Review Meeting of Regional-cum-Facilitation Centre on 28th June, 2018
10. Participated in the Stakeholders Meet-cum-workshop of RCFC-Northern Region II, Jammu & Kashmir on 25th September, 2018
11. Participated in Training of Trainers on "Development of training module and facilitation guide for Good Agricultural Practices and Good Collection Practices for Medicinal plants" at ICAR-DMAPR, Anand, Gujrat from 12 to 16 November 2018
12. Participated in National Conference on Giloe (*Tinospora cordifolia*) on 15th November, 2018
13. Participated in "Rural Connect Conclave" on Export opportunities of Medicinal Plants in West Bengal organized by **Bengal Chamber of Commerce & Industry** in association with WBSMPB on 4th December, 2018
14. Organized One Meeting-cum-Training programme at Kalyani, Nadia, West Bengal for promotion of Medicinal Plants on 27th December, 2018



15. Participated in the National Expo & Workshop on Medicinal Plants with Buyers-Farmers Meet at Guwahati on 11th January, 2019
16. A meeting was organized at RCFC-ER office at Kolkata on 8th February, 2019 where representatives of Ramkrishna Mission Ashram, Sargachi, Mursidabad and Janus Life Sciences were present apart from RCFC officials. The discussion was focussed on the cultivation of high yielding variety of Stevia after the selection of best variety in the experimental plots in Murshidabad. The high biomass+ TSG yield and low flowering tendency species suitable for gangetic alluvial regions of West Bengal will be identified through multi-variety field trials at the premises of Ramakrishna Mission Ashram at Sargachi.
17. Prof. Asis Mazumdar, represented the NMPB and delivered a lecture on "Role of NMPB to harness the potential of medicinal plants sector in India" in Two days National Seminar on "Current Research in Medicinal Plants – Global Trends and Indian Scenario" on March 28-29, 2019 at Dr. B. C. Roy College of Pharmacy and Allied Health Sciences, Bidhan Nagar, Durgapur.

EXPOSURE VISITS

1. Exposure Visit to Chhattisgarh for the progressive farmers of Odisha and West Bengal

The exposure visits was organized during 24th to 29th March 2019 to Bilaspur and surrounding districts of Chhattisgarh State to learn prevailing agro-practices, primary processing & value addition, and marketing of medicinal plants for Medicinal Plants Cultivators for 11 nos. of progressive farmers from Odisha and West Bengal.

The participants got first hand information about the techniques cultivation, value addition and marketing of medicinal plants and to enhance their understanding on medicinal plants based Enterprise development. The participants of West Bengal were motivated by the information booklets and processing unit and immediately they have produced brochure for herbal garden and planned for packaging of processed products with potential usage tag. The Odisha team was called by the APCCF and they have a detailed meeting with Forest Secretary, PCCF & HoFF, SMPB and other officials to decide over further course of action for the promotion of medicinal plants in the state of Odisha.



2. Exposure Visit to Chhattisgarh for the progressive farmers of Bihar and Jharkhand

The exposure visits was organized during 27th to 1st April 2019 to Bilaspur and surrounding districts of Chhattisgarh State to learn prevailing agro-practices, primary processing & value addition, and marketing of medicinal plants for Medicinal Plants Cultivators for 14 nos. of progressive farmers from Bihar and Jharkhand.

The participants got first hand information about the techniques cultivation, value addition and marketing of medicinal plants and to enhance their understanding on medicinal plants based Enterprise development. The participants of Bihar were motivated by the information received and they planned for replication of production unit and their management by the local level organization. The Jharkhand team was motivated to take up cultivation in the state along with establishment of primary processing unit and state level organizations for making business from this sector which is underutilized. Both the states will also explore the initial funding for promoting cultivation in the states.



Development of QPM

Quality Planting Materials (QPM) were raised in multiple location and engaging various organizations in the state of Bihar, Odisha and West Bengal. The details are as below:

- 10,000 QPM were raised under technical supervision of Midnapore Forest Division at Midnapore, West Bengal
- 20,000 QPM were raised through Medicinal and Aromatic Plant Growers Association of Bihar at Patna, Bihar
- 20,000 QPM were raised through Sabuja Bilav, Bhubaneswar at Ufalgadia, Odisha
- 20,000 QPM were raised through Avi's Enterprise at Krishnapur, Saguna, Kalyani, Nadia, West Bengal
- 30,000 QPM is raised at the Nursery of Jadavpur University Main Campus, West Bengal

Details of QPM raised and distributed in West Bengal:

Avi's Enterprise of Krishnapur, Saguna, Kalyani, Nadia, West Bengal has been given responsibility for raising 20,000 nos. of QPM in which 10,000 is for Aloe vera, 5000 is Tulsi and 5000 is for Aswagandha. Raised QPMs were distributed among the farmers.



Details of QPM raised and distributed in Odisha:

Sabuja Bilav, D-30, Green Garden, Kalinga Vihar, Atraada, Bhubaneswar-751019, a NGO of Odisha has been given responsibility for raising 20,000 nos. of QPM in which 15,000 is for Sarpagandha, 3000 is for Lemongrass and 2000 is for Gudmar. Raised QPMs were procured and distributed among the farmers.



Details of QPM raised and distributed in Bihar:

Medicinal and Aromatic Plant Growers Association of Bihar, B-83, Ashokpuri, Khajpura, Bailey Road, Patna - 14, a Trust of Bihar has been given responsibility for raising 20,000 nos. of QPM in which 10,000 is for Sarpagandha, and 10,000 is for Satabar. Raised QPMs are distributed among the farmers whose details mentioned below:

RESEARCH STUDIES

Study-I: Identification of High Yielding Stevia Cultivars Suitable for Gangetic Alluvial Regions of West Bengal

Progress so far (The study is being conducted by JANUS LIFE SCIENCES, Kolkata in close coordination with RCFC-ER and Ramkrishna Mission Asharam Sargachi.)

- 10 different Stevia cultivars have been collected in seed form. One non-flowering variety has also been collected from another commercial plantation in West Bengal technically supported by Janus Life Sciences.
- According to our latest observation on 9th May, 2019, seeds of all the varieties have been germinated and the germination percentage varied within 65% to 10% in different cultivars.
- The germinated plants are being monitored for phenotypic differentiation. First round of selection will commence on last week of May, 2019



Study-II: Assessment of Active Principle of Medicinal Plants for Recommendation of Cultivation as Quality Plant Materials"

Progress so far (The study is being conducted by RKMVC College, Rahara, Kolkata in close coordination with RCFC-ER):



The evaluation of total volatile oil content in different cultivars is essential for assessment of quality of tulsi for mass scale cultivation. The extracted essential oil is transparent, pale yellow in colour and has water like viscosity. It has fresh, earthy and minty fragrance. 0.9 ml oil is obtained from 650 g fresh twigs which accounts to be 0.14% (v/w). Different cultivars are being collected and will be evaluated to evaluate and select the elite cultivar(s) which will be recommended for future cultivation.

Study-III: Research study to explore the ethnomedicinal use of *Uraria lagopoides* (Shiv-jata) along with validation of one major use.

Intensive exploration of *U. lagopoides* affirms that the plant has multipurpose use against various diseases and the whole plant bears healing properties. The potential use of the plant of plant parts include: *Wound healing, Anti-inflammatory, Anti-diarrhoea, Abortifacient, Laxative, Aphrodisiac* and *Others* purposes.

The methanolic extract reveals the presence of tannins, alkaloids, glycosides, carbohydrates, flavonoids, steroids, and saponins whereas aqueous extract shows positivity of tannins, glycosides, carbohydrates, flavonoids, and saponins.

