

DOPR News

DIRECTORATE OF OIL PALM RESEARCH

(Indian Council of Agricultural Research)

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From the Director's Desk

Dear Readers,

The Director General, Indian Council of Agricultural Research has constituted the Quinquennial Review Team (QRT) to review the work done during the period from 01.04.2006 to 31.03.2011 at Directorate of Oil Palm Research, Pedavegi, Andhra Pradesh. The Team, based on the visit to the experimental farms and laboratories at the Institute and its Research Centre at Palode as well as detailed discussions with Scientists, Department officials, Processors and Farmers prepared the QRT report in an appreciable manner. A few of the salient recommendations of QRT are as follows:

Germplasm accessions that are selected based on the Evaluation Trials conducted over a period of more than 15 years could be effectively used for crop improvement programme for developing hybrids for high yield, quality, resistance to biotic and abiotic stress; *E. olifera* x *E. guineensis* crosses, DXP crosses with selected high yielding duras should be developed on priority basis; Utilizing the available elite dura and pisifera sources, it is possible to give third generation superior dura parental palms for the establishment of new seed gardens; There is a possibility to increase the planting material (sprouts) production indigenously from two million to five million tenera seeds from the existing seed gardens; Genetic marker study should be strengthened mainly for qualitative characters like shell thickness etc.; Identification of elite palms at seedling stages may be further explored through marker studies; Tissue culture

studies have reached the stage of developing a few plants through inflorescence and meristem ex-plants. Through concerted efforts it should be possible to develop the protocol and go for pilot scale production; Two peaks of FFB harvest are observed in the farmers' fields, efforts may be made to extend this period of peaks to get a third peak in harvest; Leaf breaking, Ganoderma (Basal stem rot and wet rot), Bud rot and Yellow leaf spot observed recently warrant special attention; Similarly, the incidence of two major defoliators viz., Psychid (*Metisa plana*) and Leaf web worm (*Acria* sp) needs immediate attention to develop IPM; Involvement of all Krishi Vigyan Kendras located in oil palm growing areas for dissemination of the research findings as part of "Knowledge Empowerment Programme" could be undertaken as a priority activity; DOPR Research Centre, Palode should be developed as a Centre of Excellence for oil palm seed technology and seed production; Germplasm conservation, seed production and training are suggested activities for Palode Centre. Most of these recommendations are being incorporated in the Technical Programme of the Institute as well as in the XII Plan proposals as a part of strengthening the oil palm research system in India.

S. ARULRAJ
DIRECTOR

Sectoral News

Management of bud rot in oil palm plantations

Due to continuous rains during this year, many of the oil palm growers are reporting the incidence of bud rot disease in their oil palm plantations. The disease incidence can easily be identified by the presence of yellow spear leaf which subsequently turns brown. Affected spear bends at the base and hangs down in the crown. Rotting starts at the basal portion of the spear, close to the meristem and the spear comes out with a gentle pull. Rotten tissues

emit an offensive smell. Disease can be managed by pulling the affected and decayed spear and drenching the crown region with 0.1% carbendazim.

If adult palms are affected by the disease, crown surgery should be taken up. The affected spear should be pulled, which comes out easily, and the decaying tissues of the meristem should be removed layer by layer till fresh tissues are seen. Carbendazim paste (20 grams in 100 ml water) should be applied on the fresh surface of the meristem.

RESEARCH ACHIEVEMENTS / NEW FINDINGS

Successful callus induction from oil palm immature inflorescence

Tissue culture studies conducted in oil palm indicated that immature inflorescence collected below 15th leaf axil is the best explant. Preliminary experiments conducted to find out the media and the concentration of auxins that can produce repeatable callus induction from immature inflorescence (specifically male inflorescence) indicated that Eeuwens media with 2,4-D (2,4-dichlorophenoxy acetic acid) and picloram (4-amino-3,5,6-trichloropicolinic acid) at 300 µM concentration is able to induce callus from immature male inflorescence within a period of three to six months. Callus induction is obtained in all the palms within a period of three to six months. The primary callus thus obtained was subcultured after every four to six months gradually reducing the concentration of auxins. Serial transfer of explants from high to low auxin concentration was found to be required for embryogenic calli induction. After two such subcultures, embryogenic calli was induced (Fig 1). On transfer of these embryogenic calli to Y3 media with ABA (15.12 µM) and GA (5.72 µM) under light conditions, plant regeneration is observed (Fig 2).

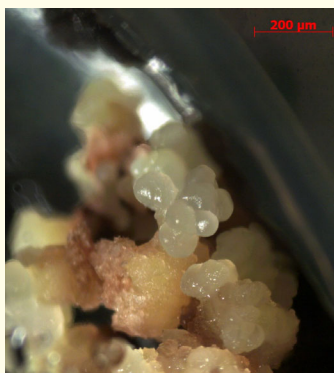


Fig. 1



Fig. 2

Performance of Inter specific progenies of oil palm

New inter specific progenies (*Elaeis oleifera* x *Elaeis guineensis*) developed from *Oleifera*, sourced from commercial plantation (OPIL-Chithara estate) were found to be showing impressive performance in terms of precocity in bunch production and productivity. Individual palms from the progenies have been monitored for taking the cycle to the next generation for developing dwarf variety.



Medium term storage method for oil palm pollen

Oil palm pollen stored in diethyl ether (90.45 %) as well as in n-hexane (88.41 %) had maximum viability at 200 days of storage against 99 % for fresh pollen. Highest germination percent was observed in pollen stored in diethyl ether (78.98%) and n-hexane (78.11%) against 94 % in case of fresh pollen. Pollen grains stored in non polar organic solvents (n-hexane and diethyl ether) retained maximum viability, where as those stored in polar solvents, lost viability and germination capacity very fast. Thus, it is feasible to store oil palm pollen in diethyl ether or n-hexane at 0 to -5°C temperature up to 200 days without considerable loss of viability or germination.

Training courses attended

Dr. B. N. Rao, Principal Scientist attended training programme on “Consultancy Projects Management” at NAARM, Hyderabad during August 7-14, 2012.

Dr. K. Sunil Kumar and Dr. K.L. Mary Rani, Scientists attended ICAR sponsored short course on “Applications of Bioinformatic Tools for Crop Improvement and Disease Diagnostics” organized by CPCRI, Kasaragod during September 17-26, 2012.

TRANSFER OF TECHNOLOGY

Officers Trained: The following training programmes were organized to officers from Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Odisha, Bihar and Mizoram.

Training Programme	Date	Venue	No. of. Participants
Oil palm production	July 24-25, 2012	DOPR, Pedavegi	25
Oil palm production technology	August 22-29, 2012	DOPR, Pedavegi	28
Oil palm hybrid seed production	September 26-28, 2012	DOPR, RC, Palode	6

Farmers Trained: Eight training programmes of one day duration on “Oil palm cultivation” were organised to 139 farmers belonging to Mizoram, Karnataka and Andhra Pradesh. Details of the training programmes are as follows:

Date and venue	Farmers represented from	No. of. Participants
12.7.2012 DOPR, Pedavegi	Belgaum, Karnataka	19
19.7.2012 DOPR, Pedavegi	Belgaum, Karnataka	13
24.7.2012 DOPR, Pedavegi	Belgaum, Karnataka	10
26.7.2012 DOPR, RC, Palode, Kerala	Thirunalvelli, Tamilnadu	40
01.8.2012 DOPR, Pedavegi	Belgaum, Karnataka	10
03.8.2012 DOPR, Pedavegi	Belgaum, Karnataka	13
16.8.2012 DOPR, Pedavegi	Belgaum, Karnataka	12
23.8.2012 DOPR, Pedavegi	Nalgonda, Andhra Pradesh	10
22.9.2012 DOPR, RC, Palode, Kerala	Kadayanalur, Tamil Nadu	12

Extension activities

Radio talk

Dr. P. Naveen Kumar, Senior Scientist gave live phone-in programme ‘baat phoolon ki’ at AIR, Indraprastha station, New Delhi on August 8, 2012.

Awareness campaigns

Dr. B. N. Rao, Principal Scientist, attended awareness programme on Oil Palm at OUAT, Bhubaneswar organized by Association of Oil palm Companies of Odisha on July 21, 2012.

Dr. B. N. Rao, Principal Scientist, attended seminar on oil palm organized by M/s. Coromandel International Ltd, Visakhapatnam Zone at

Rajanagaram, East Godavari and delivered a lecture on “Irrigation and nutrient management in oil palm” on 22.8.2012, wherein 50 oil palm growers participated.

Feasibility study conducted

Feasibility report on potentiality for oil palm cultivation in Mummidivaram mandal, East Godavari dt., Andhra Pradesh was submitted by Drs. K. Sunil Kumar, Goutam Mandal and K. Ramachandrudu.

Students guided

Dr. M. Jayanthi, Senior Scientist guided two M. Sc (Biotechnology) students of Andhra Loyala College, Krishna University, for their project work.

Participation in symposia / seminars / workshops / conferences/meetings etc.

Dr. S. Arulraj, Director attended

- XXI Regional Committee Meeting held at NAARM, Hyderabad during July 19-20, 2012.
- Horticulture Division meeting held at NASC, New Delhi on July 23, 2012. Dr. H. P. Singh, Deputy Director General (Horticulture), ICAR chaired the meeting.
- 'Knowledge Meet' chaired by Dr. S. Ayyappan, Director General, ICAR during August 21-22, 2012.
- Horticulture Division Meeting chaired by Dr. N.K. Krishna Kumar, Deputy Director General (Horticulture), ICAR on August 23, 2012.
- Project Monitoring Committee meeting of Oil Palm Development Project in Karnataka State on September 25, 2012.

Dr. S. Arulraj, Director, Dr. B. N. Rao and Dr. R.K. Mathur attended the XXI Annual Group Meeting of All India Coordinated Research Project on Palms held at Agricultural College, Madurai, Tamil Nadu during July 11-13, 2012.

Drs. P. Kalidas, K. Suresh, M. Jayanthi, Goutam Mandal, K. Ramachandrudu, K. Sunil Kumar, Sanjib Kumar Behera and P. Naveen Kumar participated in the International conference on Agriculture and Horticulture held at Hyderabad during September 12-14, 2012.

Research articles published

Naveen Kumar, P. and Misra, R. L., 2012. Effect of plant growth regulators on growth, flowering and corm production of gladiolus cv. Snow Princess. *Ind. J. Agric. Sci.* 82 (7): 639-44.

Naveen Kumar, P. Ben Spitzer Rimon and Alexander Vainstein, 2012. Genetic engineering for fragrance through the regulation of phenylpropanoid biosynthetic pathway. *Journal of Agrotechnology*, 1(2): 33.

Somasundaram, J., Krishnasamy, R., Savithri., Mahimaraja, S., Satishkumar, B., Sivasubramaniam, K., Arunkumar, V., Poongothi, S., Vasanda coumar, T. and Behera S. K., 2012. Accumulation of few heavy metals in sewage sludges, soils and plants of

Coimbatore, Tamil Nadu, India. *J. of Environ. Sci. and Engg.* 54(1):13-19.

New projects sanctioned

The following new projects were approved by Department of Agriculture and Cooperation for funding under Oil Palm Area Expansion programme:

- Enrichment of oil palm genetic resources from centres of diversity (collection of germplasm within country and import)
- Impact of vermi-compost on substrate dynamics in oil palm
- Management of leaf eating caterpillars on oil palm

Consultancy Project "Production of quality oil palm hybrid seeds and management of seed garden at Navabharat Agro Product Ltd., Jangareddygudem".

Establishment of new seed gardens

Two new oil palm seed gardens were established at Taraka and Kabini, Mysore district, Karnataka, under the guidance of a team of scientists from DOPR. The parental planting material was supplied by DOPR, Pedavegi.

PERSONALIA

Bagged prize in Hindi essay writing competition

Mr. Syyad Khasim Saida, U.D.C., won second prize in essay writing competition in Hindi held on September 25, 2012, organized by Town Official Language Implementation Committee, Eluru, West Godavari District, Andhra Pradesh.

New scientist joined

Dr. P. Naveen Kumar, Senior Scientist, Directorate of Floriculture Research, New Delhi was transferred to DOPR, Pedavegi and joined on August 13, 2012.

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