NEWSLETTER

ICAR RESEARCH COMPLEX FOR GOA

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From the Director's Desk....

Status, research highlights and future prospects of Kokum

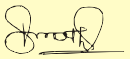
Kokum, ***Garcinia indica*** (Thouars) Choisy belongs to the family *Clusiaceae* and is a native of Western Ghat especially Konkan region. Though the genus ***Garcinia*** has got around 200 species widely distributed throughout Tropical Asia, few economically important species are ***G. mangostana***, ***G. indica*** and ***G. gummigutta***. Kokum is an evergreen, perennial, monopodial and tall growing tree found in the west coast of India, in Northern Kerala, coastal Karnataka, Goa and Konkan belt of Maharashtra. Besides, Kokum is also found in Andaman and Nicobar Islands, Orissa and North-Eastern region to a lesser extent. But Kokum is not commercially cultivated on large scale plantation/orchard despite its virtues. Kokum has got multiple uses and therefore finds an inevitable place in lifestyle of local population. It is one of the important under-exploited spices of the region. It has got anti-scorbutic, astringent, demulcent and antiseptic properties. The fruit juice is used for preparation of syrup, squash, RTS, agal (salted juice) etc. The fruit rind is a rich source of alpha-HCA (hydroxy citric acid) and the discovery by Dr. John Lowenstein that HCA present in ***Garcinia indica*** rind prevents fat accumulation in body cells has enhanced up the value of this crop in the global market. This active principle is the potential ingredient of natural slimming agents that are available as “over-the-counter” drugs in the Western countries. The rind is also a rich source of anthocyanin that can be used as natural food colour. The fruit rind is shred into pieces and sun dried and subsequently preserved by soaking in concentrated kokum juice along with salt. This produce, locally termed as 'Amsul' is used as a principal souring agent in the Goan cuisine. The seeds of kokum fruits are rich sources of edible fat called “Kokum butter”. It is used as a component in ointments, soaps, confectionaries, cosmetics and also for culinary purposes.

The multi-faceted potentialities of this crop as a fruit, a spice, a medicinal species and a nutraceutical have attracted several research workers on various aspects of this crop. The enormous bio-diversity of this crop is being studied at the ICAR Research Complex for Goa. Certain promising accessions from various talukas of Goa have been identified. The survey and evaluation work is being continued for the fourth year. Plus trees for higher yield, earliness, regular bearing and appealing fruit quality will be identified in the course of study. A germplasm bank is being established at the Institute and standardization of package of practices for the elite accessions would be attempted. The potentialities of including kokum as an intercrop with other horticultural crops like cashew, mango, arecanut will also be systematically studied in future.

Another institute pioneering in kokum research is Dr.B.S. Konkan Krishi Vidyapeeth, Dapoli. Though initial research work traces back to early 70s, systematic breeding work geared up later on during early 90s. Extensive surveys conducted in Konkan tract in Maharashtra led to identification of certain promising accessions. The germplasm was evaluated for 5-6 years in Mulde and the most promising accessions evaluated 'Konkan Amruta' was released during 1997. It is an early bearer with a fruit yield of 138 kg/tree/year. Another selection 'Konkan Hatis', a promising yielder has been released in 2006. Besides, soft wood grafting has been standardized and the effect of plagiotrophy on the graft phenotype has also been thoroughly studied.

Kokum plays an important role in the livelihoods of the population mainly in Konkan (west coast) region of India. Home scale preparation of kokum products is an

emerging small-scale enterprise in Konkan tract. The most commonly prepared products are dried kokum rind (Amsul), Amrit kokum and kokum butter, ranging from 1-10 kg per household. It has been roughly estimated that, in south Konkan region, around 1674 MT of fruits are used for dried kokum rind, 757 MT for Amrit kokum and 40 MT for Kokum butter. One processing unit employs 5-6 persons per day with a working season of 111 days in a year. The kokum products are distributed from producer to consumer through whole saler and retailer. Inadequate supply of fruits or seeds, high price of raw material, heavy octroi, labour scarcity etc are few important constraints in kokum processing industry. The existing marketing of kokum is completely under the clutches of traders and middle-men. Purchase of raw materials through farmers' co-operative and development of infrastructure facilities in villages can only help to combat the existing tribulations. Moreover various value-added products presently available in the local market need to be popularized beyond Konkan tract into the National and International arenas. Kokum as a crop not only has got great potentiality and is wide open for diverse areas of research and development activities to be thrust in but also a bright future to be commercially exploited by the agri-horti entrepreneurs.



V.S. Korikanthimath

RESEARCH HIGHLIGHTS

Web-based Poultry feed ration software

Poultry feed ration software was developed for calculating the feed requirement of poultry birds at various growth stages. PHP is the scripting language used and is linked with the MYSQL database. There are about 26 feeds and 8 fillers are entered in the database along with the data of ingredients like crude protein, crude fiber, total phosphorus, calcium, lysiene, methionine, ether extract, energy etc. The software's main page displays the list of poultry feeds locally available in Goa along with the most commonly used filler materials used for making the feeds. User has to choose some of the feed and filler materials from the page. Second page is data entry page in which user has to enter the quantity (in Kg's) and price (Rs.) for the chosen feed and filler materials. By default prices of the various feeds are given in the price column of the chosen feeds and fillers, but these values can be changed by user if there is any variation in the prices. Upon feeding the relevant data and choosing the stage of the bird (Starter/ Finisher/ chick/ Grower/ Layer/ Breeder), and clicking on form gives the out put with the composition like crude protein, crude fiber, energy, ether extract, methionine, lysine etc., in quantity as well as percentages for chosen feed and recommended feed at a given stage of the bird. This software is very much useful for various people involved in making the feed for poultry birds. Snapshots of the software are given in Plate 1.

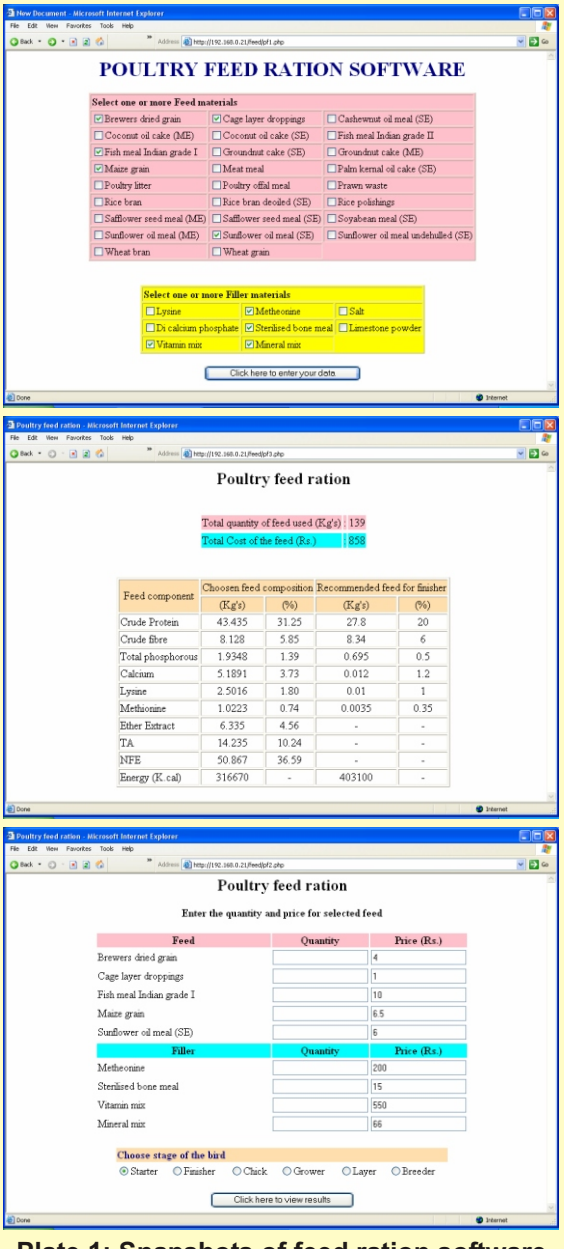


Plate 1: Snapshots of feed ration software

Constraints in poultry farming in Goa

A survey was conducted to know the present status and constraints of Poultry farming in Goa. As per the ranking of different constraints by the poultry farmers a rank based quotient (RBQ) was calculated by a formula.. Results on RBQ revealed that there was a great variation in the options given different RBQ. Large number of farmers opted high feed cost as the major constraint with RBQ value of 94.28 and next constraint was competition with outside farmers (RBQ=79.43) followed by high labour cost (RBQ=77.43), trading (RBQ=52.43), high cost of electricity (RBQ=40), high chick cost (RBQ=34.57) and non-availability of health services (RBQ=22.14).

High feed cost is the major constraint in poultry farming followed by other major constraints like competition with outside farmers, high labour cost and trading. This problem can be solved by the help of local Govt. by opening co-operative societies to sale the farm produce with uniform price, providing subsidy on feed, electricity and water charges. Besides Govt. can encourage farmers to establish own feed mill by availing subsidy on equipments to reduce the feed cost which constitutes about 60-70 % of the total cost of poultry production.

MAJOR EVENTS

Kisan Mela Held

A Kisan Mela was organised on the occasion of World Food Day at the Institute on 16 October, 2006. Shri. Subash Shirodkar, Honourable Minister of Panchayat Raj, Government of Goa was the Chief Guest and Shri P.P.Kumbhare, Director of Agriculture, Government of Goa presided over the function. More than 100 delegates form different parts of Goa participated in the programme.

Convention on employement generation and livelihood securities organised

A Convention on employement generation and livelihood securities was organised on the occasion of Women in Agriculture Day at the Institute on 5 December, 2006. Shri S.C.Jamir, Honourable Governor of Goa was the Chief Guest. Around 120 delegates form different places of Goa participated in the programme. His excellency, The Governor of Goa also inaugurated the Agricultural Technology Dissemination Centre (ATDC) on the occasion.

PARTICIPATION IN SEMINAR / SYMPOSIA / WORKSHOPS / TRAINING / WINTER SCHOOL

V S Korikanthimath

Group Meeting on Groundnut held at NRC for Groundnut, Junagarh during 19-20 September, 2006.
Short course on vigilance, administration and management held at NAARM, Hyderabad during 18-20 September, 2006.
Agricultural Summit, 2006 held at Vigyan Bhavan, New Delhi during 18-19 October, 2006.
National symposium on agro forestry for livelihood security, environment protection and biofuel production held at NRC for Agro forestry, Jhansi during 23-25 December, 2006.

S Subramanian

Workshop on PFZ Mission: Present status and improvements, held at Hyderabad on 18 August, 2006.
Agricultural Summit, 2006 held at Vigyan Bhavan, New Delhi during 18-19 October, 2006.
Workshop on Right to information Act, 2005, held at Bangalore during 27-28 October, 2006.

J R Faleiro

Workshop on use of bio- fertilizers and bio- pesticides in agriculture organised by SAMETI Hall, Old Goa on 10 October, 2006.

H M Wasnik

NAIP Meeting held at CIFE, Mumbai on 19 August, 2006.
Dissemination workshop on health, well - being and sustainability in mining regions held at Hotel Nova Goa, Panaji on 17 October, 2006.

B L Manjunath

Second International Rice Congress held at NAAS, New Delhi during 9-13 October, 2006.

E B Chakurkar

Technical seminar on bird flu held at Panaji Goa on 30 October, 2006.
Technical seminar on infertility in farm animals, Status and Solutions held at Panaji, Goa on 21 November, 2006.
XXII Convention of Indian Society for Study of Animal Reproduction and National Symposium on " Innovative Technologies for Fertility Enhancement in Livestock " held at Veterinary College Mhow Indore during 10-12 November, 2006.

B K Swain

Training programme on Avian Influenza (Bird Flu) held at Stockman Training Centre, Curti, Ponda on 5 October, 2006.
Technical seminar on infertility in farm animals, Status and Solutions held at Panaji, Goa on 21 November, 2006.

K N Mohanta

International Symposium on Sustainable Fisheries Development of Food and Health Security held at Mangalore during 20-21 December, 2006

R Ramesh

Off campus training programme on administrative and financial management held at NAARM, Hyderabad during 4-7 September, 2006.
Short term training programme on antagonists for plant disease control held at PDBC, Bangalore during 18-26 September, 2006.
Winter School on diagnostics and molecular characterization of pathogens of horticultural crops and their bioconrol organisms held at IISR, Calicut during 1-21 December, 2006.

J Ashok Kumar

Workshop on PERMISnet held at NAS Complex, New Delhi during 21-22 July, 2006.

Raj Narayan

XI Plan EFC Memo meeting held at UAS, Dharwad on 21 August, 2006
Workshop on process of agriculture knowledge management held at KVK, Trivendrum during 12-15 September, 2006.
Workshop on NAIP held at CPCRI, Kasargod on 22 September, 2006.
QRT traveling workshop held at TNAU, Coimbatore on 28 October, 2006.
Annual review meeting of KVK held at CPCRI, Kasargod during 1-4 November, 2006.
2nd Annual conference on KVK held at ANGRU, Hyderabad during 26-27 November, 2006.

H R Prabhudesai

Annual all India groundnut workshop held at NRC for Groundnut, Junagadh during 19-20 September, 2006.
Workshop on use of bio- fertilizers and bio-pesticides held at Sameti Hall, Old Goa on 6 October, 2006.

H.R.C.Prabhu

Training on antagonists in plant protection held at PDBC, Bangalore during 18-26 September, 2006.

PERSONALIA

Foreign Deputation

Dr. S. B. Barbuddhe, Senior Scientist of the Institute was deputed by ICAR / DARE to Germany under Biotechnology Overseas Associateship Programme for one year starting from November 2006.

Promotions

Shri KR Naik, Assistant was promoted to Asst. Administrative Officer w.e.f. 21-08-2006
Smt. Maria Teresa Nigli, Assistant was promoted to Asst. Administrative Officer w.e.f. 21-08-2006
Smt. Asha Manjrekar, UDC was promoted to Assistant w.e.f. 21-08-2006
Smt. Monita Rita D'Silva, UDC was promoted to Assistant w.e.f. 23-12-2006
Smt. Sunanda Chopdekar, LDC was promoted to UDC w.e.f. 21-08-2006
Smt. Reshma Naik, Supp. Staff was promoted to LDC w.e.f. 06-10-2006

Appointments

Dr. Raj Narayan was appointed as Programme Co-ordinator, KVK w.e.f. 07-08-2006

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