

and a review talk on experiments using 14 MeV neutron source by T. K. Basu (BARC) showed the involvement and preparedness of big teams of scientist world over in the development of several techniques for studies related to ADS. Besides, S. K. Gupta (University of Rajasthan) delivered a talk on time-of-flight technique for measurement of neutron cross-sections.

(f) Spallation target and technologies (four talks): Development of a spallation target for ADS, particularly that in the liquid phase is a matter of developing a special technology of Pb + Bi eutectic.

Russians have got expertise in this technology so far. P. Satyamurthy (BARC) delivered two talks on this aspect presenting preparations being done by Indian scientists for the eutectic technology. R. M. Vadjikar (CAT) discussed heat dynamics of solid targets. K. Kobayashi (Kyoto University, Japan) presented a theoretical talk on the issue of interpretation of sub-criticality coefficient in case of neutron source-driven systems like the ADS.

The workshop ended with a concluding session emphasizing the need for experimental facilities that should be set up

on priority for data collection and preparing the Indian database for ADS. The organizers have released powerpoint presentations of all the speakers in a CD. The Abstract Booklet of the workshop will be available on a CD. The text of full papers will be published shortly in *Pramana – J. Phys.*

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MEETING REPORT

New developments in rapeseed mustard*

Oilseed crops in India account for almost 5% of Gross National Product (GNP) and 10% of the value of agricultural products. Rapeseed mustard (*Brassica*) contributes 32% of the total oilseed production in India, and it is the second largest indigenous oilseed crop. Despite many changes in the rapeseed mustard sector, such as development of improved varieties, region-specific production and practices, India is not self-sufficient in this crop. Agricultural scientists, policy makers, field botanists, biotechnologists and the industry are gearing up to the challenge to bring back the lost glory to this crop by enhancing the yield per hectare, developing improved hybrids, improved farm mechanization methods and post-harvest management strategies. In view of recent research carried out in the above-mentioned methods and research in health and dietary aspects, a one-day national conference was organized. The conference received infrastructural and financial support from NAFED. The conference was attended by 200 delegates from various parts of India. Research scholars, teachers from various

colleges, university departments, scientists working in NGOs, Indian Council of Agricultural Research laboratories and entrepreneurs from the oilseed industry attended the conference.

The one-day deliberations consisted of four technical sessions and a panel discussion for drafting recommendations to the Government and various agencies involved with the improvement of this crop. The four technical sessions focused on (a) health and nutritional aspects, (b) crop improvement, (c) quality and value addition, and (d) processing and storage.

A. K. Bhatnagar (Department of Botany, University of Delhi) while delivering his welcome address, focused attention on the uses of mustard and added that 'the golden crop with strong aroma needs serious attention from all quarters and cross-sections of society associated with this crop'. He added 'scientific institutions, marketing managers and industry need to work together and carry out collaborative research with inputs from farming community to make the elusive "Yellow Revolution" a reality'. The seminar was inaugurated by Kailash Jyani (Additional Director General, NAFED) who emphasized the need of region-specific research in this crop. He cautioned the scientific community about loss in yield of crop due to pests and pathogens in the field as well as after harvest. He also stressed on the need of more proactive

research in all frontiers so that aspirations of farmers to gain better market prices for their produce are assured.

S. C. Manchanda (All India Institute of Medical Sciences (AIIMS), New Delhi) in an interesting lecture on 'Role of Indian mustard in controlling coronary heart diseases', stated that the use of mustard oil could contribute significantly to check increasing epidemic of coronary heart diseases (CHD), which are the leading cause of death in the developing countries. Discussing the properties of mustard oil, Manchanda emphasized that it is a healthy cooking medium because of low saturated fatty acids (8%), high monosaturated fatty acids (70%) and alpha linolenic acid (10%). According to the recently published study by the Harvard Medical School of Public Health, USA; AIIMS, New Delhi and St. Johns Medical College, Bangalore, it has been demonstrated that use of mustard oil as a cooking medium reduces CHD risk by almost 70%. M. S. Ganesh (Fortis Hospital, Delhi) shared his views on anticancer properties of mustard oil. He elaborated on the role of various components of oil, such as curcumin, antioxidants, and isothiocyanates in preventing malignancy. In the second technical session, Deepak Pental (University of Delhi) spoke on the recent developments in hybrids and transgenics in mustard. He stressed on the need of modern biotechnological innovations *vis-à-vis*

*A report on the National Conference on 'New Developments in Rapeseed Mustard', organized by the Mustard Research Promotion Consortium, an autonomous organization, and the Delhi University Botanical Society at the New Conference Centre, University of Delhi, Delhi on 21 January 2006.

conventional breeding for improving this crop. He also focused on the role of male sterility, hybrid DMH-II and pollination control systems developed in various species of *Brassica*. Addressing the gathering on the importance of value-added products from mustard and their applications in food and industry in the third technical session, D. K. Bhattacharya (University of Calcutta, Kolkata) gave an interesting account of many useful value-added products from mustard and its oil. He mentioned that modification of *Brassica* seed oils by chemical and enzymatic reactions provides scope for production of 'nutraceuticals' and functional food

products. Rajeev Churi (SARBI Petroleum and Chemicals Pvt Ltd, Mumbai) dealt with use of environment-friendly lubricants from mustard, and its properties and advantages over mineral oils such as superior biodegradability and excellent viscosity. S. K. Saxena (Centre for Analysis and Training) made the audience aware of quality standards required for manufacturing and exporting food derivatives from mustard and the importance of quality in trade in the WTO regime.

There was a brainstorming discussion on how to improve the processing of mustard at various levels and make mustard oil a better health choice for the public.

Several measures in various sectors of research and marketing were suggested.

The conference concluded with a vote of thanks from H. B. Singh, MRPC. He thanked the delegates and speakers for their valuable inputs and encouraged the research scholars to indulge in pro-active research in frontier areas of mustard sector to meet the future challenges.

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COMMENTARY

Scientists anonymous

Asha Gopinathan

As I sit down to write this piece, a seminar I attended recently comes to mind. It was an interesting talk given by a woman archaeologist on evidence collected of trade between the Roman Empire and India, especially Kerala in the period between the 1st century BC and 5th century AD. I asked her whether she had thought of any gender dimensions to her work. She replied that a few pieces of cloth had been discovered in some of the digs which led them to conclude that families may have been present. I probed her for any evidence to prove that the boat-builders, sailors and traders were all men. She had no answer to that. She wanted to know if I was specializing in gender studies. I answered in the negative and told her that I was a scientist who is interested in the workings of the brain.

As a scientist, I have often tried to locate in the past, women and other underrepresented minorities. Often, in a collection of stories of white men, one can find a sprinkling of men of colour and may be an odd white woman thrown in. In the few collections of biographies of Indian scientists, rarely does one find the story of even one woman. I have a scrap book in which I enter the names of important Indian and other women of colour who have worked in science. Of course, when one looks at contemporary science as we

think of it today, to fill this book is a daunting task.

Women working in the area of the history of science and technology have slowly begun to change this by asking some fundamental questions of what constitutes science, who the people are whose contributions constitute recorded history and have formulated ways of rewriting the people at the margins back into the history books. It is in this connection that I find the writings of Patricia Fara, a Fellow of Clare College, Cambridge unique and interesting. In her book *Pandora's Breeches*, Fara makes the argument that during the Enlightenment, women took part in science in many roles ranging from being translators of major works to funding various projects¹. In her more recent book², Fara takes this, one step further. This is a book written primarily for a younger audience, where Fara describes and lists the achievements of many women in science in Europe (though a few from the US are also mentioned) from the 17th century to the present. The stories form interesting reading for the range of activities these women engaged in, the obstacles they faced and the strategies adopted by them to succeed. It is clear that these anonymous women carried out experiments, recorded observations, created theories, built-up collections, went on expeditions, illustrated

apparatus, specimens and translated foreign books. Some of these names have been retrieved by Fara and form the content of this very readable book.

Fara begins her story in the 17th century because that is when the first scientific society appeared. The Royal Society of London was established in 1660. It was during the period 1550 to 1700, referred to as the period of the Scientific Revolution, that reformers campaigned to bring about a change in methods of learning about nature. They put forth the view that conducting experiments was a better way to learn about nature than relying on books that were centuries old. The new scientific societies were formed to advertise this new approach. They supported research and its communication. However, no woman was ever a part of these societies. During the 17th century, there were no scientists as we understand the word today. The word was not invented till 1833. Even Isaac Newton was not called a scientist, but a natural philosopher. These natural philosophers did not work from laboratories, had no research grants and most oddly, they believed that their work helped them to learn more about God. However, even though these societies excluded women, Margaret Cavendish, a wealthy woman who critiqued the work of Robert Boyle, demanded that she be