EDITORIAL

Role of PORIM in nutritional research

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With the perception of the growing importance of palm oil as a major edible oil in the international market, the Palm Oil Research Institute of Malaysia (PORIM) began research in 1983 on its nutritional properties with the view to establish its wholesomeness and to reassure consumers of its safety. This objective was particularly relevant, since in earlier studies, in which palm oil was not evaluated[1,2], it has been found that dietary saturated fats raised, while polyunsaturated fats lowered plasma cholesterol. Palm is 50% saturated and 50% unsaturated but as it has been arbitrarily classified as saturated fat, the burden of proof that it is not hypercholesterolemic, falls ironically on those who produce the oil and not on those, who have made the claim based on their extrapolation of these studies.

The first nutritional project was a study of the effect of palm oil-based diets on blood cholesterol in rats. This study shows that total plasma cholesterol levels were not significantly higher in rats fed palm oil diets when compared to a corn oil diet[3]. In view of earlier studies on the effect of various edible oils on experimental mammary cancer in animals[4], a study to evaluate the role of palm oil in mammary tumorigenesis induced by 7,12–dimethylbenz(a) anthracene in female rats was also started. This cancer study[5] shows that mammary cancer development and progression was reduced in animals on palm oil diets when compared to a corn oil diet. The results of these maiden efforts were encouraging and follow-up and new studies were being planned when the American Soybean Association and certain health and consumer groups in the United States mounted an anti-tropical oil campaign in 1986 based on the theme that the saturated tropical oils raise blood cholesterol and hence pose a risk to cardiovascular health.

The Malaysian palm oil industry and PORIM immediately recognised the threat presented by such a campaign. For, if such a claim were to go unchallenged, there would be worldwide repercussions with other palm oil – importing countries limiting or discontinuing their purchases of palm oil to protect the health of their peoples. To counter the smear campaign, PORIM had to intensify and accelerate its research to supplement the six or so papers on the nutritional effects of palm oil that could be found in the literature up to 1986. While PORIM could marshal more money to fund these urgent projects, it nevertheless lacked sufficient trained manpower to conduct them. Accordingly, it was decided to farm out some of the identified research projects to researchers in both local and overseas institutions. This approach, which was not uncontroversial, was considered desirable and crucial too. For, studies conducted by PORIM's own researchers might be criticised as biased and the resultant findings might be considered less credible.

To date, PORIM has committed about M$10 million on funding a total of 64 nutritional projects worldwide. About 60% of the needed funds came initially from the Intensification of Research in Priority Areas (IRPA) Programme of the Ministry of Science, Technology and Environment, while the rest was from the Institute. Expectedly, this intensified programme of research has resulted in an expanding pool of fundamental and applied knowledge on palm oil nutrition (see review papers cited

later). This knowledge has in turn enabled the Institute to state categorically that dietary intake of palm oil does not lead to an elevation of blood cholesterol compared to baseline values and can result in a shifting of the LDL/HDL cholesterol ratio in a beneficial manner in most cases. Today we are almost certain that palmitic acid, which is present in palm oil to the extent of 44%, and which is regarded by most lipid nutritionists to be chiefly responsible for raising blood cholesterol, is contrariwise normocholesterolemic in man. We have reasonably good evidence that palm vitamin E tocotrienols have a blood cholesterol-lowering effect which suggests their potential application in the clinical management of hypercholesterolemia.

The new findings on the nutritional properties of palm oil need to be rapidly disseminated in order to dispel the misconceptions created in the minds of consumers as a result of the smear campaign. Thus PORIM researchers are encouraged to present their findings at conferences. To this end PORIM has since 1988 included a session or module on the nutritional and health aspects of palm oil in the conferences it organised, with the papers presented being subsequently published in the conference proceedings. Also, a review including the nutritional papers presented at the 1989 PORIM International Development Conference, has been published[6], while Professor N. Chandrasekharan's article in the current issue of the journal reviews besides others the papers presented at the 1989 and 1991 conferences.

PORIM researchers are also encouraged to publish their findings in peer-reviewed journals. Thus, certain papers presented at the 1989 conference plus an overview on the nutritional aspects of palm oil by Dr. Richard C. Cottrell have since been published in the April 1991 supplement of the American Journal of Clinical Nutrition[7], while some papers presented at the 1991 conference have recently appeared in a supplement of Nutrition Research[8]. Finally, all the nutritional findings on palm oil up to 1990 had been reviewed by a committee of local experts, whose work culminated in the publication of a report for dissemination[9]. A chapter of this report has since been published in this journal[10].

Earlier on, the paucity of scientific work was naturally an obstacle to convincing the medical and health communities that there was nothing wrong with palm oil when used in the food system. However, as reviewed above, after almost a decade of sustained research efforts by PORIM, there is in particular much good evidence pertaining to the beneficial effects of palm oil on the cardiovascular system. Perhaps the time has come for medical and health practitioners individually or collectively to review such evidence and apply this in their work in safeguarding human health.

"Quo vadis?", this question may be asked of PORIM, now that a core of knowledge concerning the impact of palm oil and its minor components on human nutrition and health exists. While the present research strategies will be continued, future emphasis will be on the elucidation of the roles of palm fatty acids and tocotrienols in modulating lipoprotein production and lipoprotein receptor activity. The results of such mechanistic studies will not only strengthen palm oil's position as a nutritious edible oil but also enhance basic understanding of the metabolic effects of fats and oils.

References

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