Sri Lankan Traditional Rice: Foundation for a Healthy Diet?

Snr. Prof. Sagarika Ekanayake

Chair and Senior Professor of Biochemistry, Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

Snr. Prof. Sagarika Ekanayake, Chair and Senior Professor of Biochemistry, Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka was the fourth speaker of the BAS Plenary Session. Prof. Ekanayake presented on the topic "Sri Lankan Traditional Rice: Foundation for a Healthy Diet?" She discussed the rice consumption patterns and processing, the resurgence of Sri Lankan traditional rice, comparative analysis of the effect of processing or cooking of traditional rice on macronutrients, resistant starch, and Glycaemic response. Rice is the staple food of Sri Lankans and is the meal consumed twice a day by the majority. Per capita consumption of rice is 114 kg /year of rice and rice-based products. Rice provides 40% of total calorie and 31% protein requirement of an average Sri Lankan. In addition, rice is a source of minerals, vitamins, dietary fiber and other substances needed for good health. However, these vary in content depending on the variety and processing rice is subjected to. Rice is processed and available as raw whole grains (traditional rice), raw polished (Kekule) or parboiled. Refined, newly improved varieties of rice had become more popular since the 1960s which led to a decline in the cultivation and consumption of traditional Sri Lankan rice varieties (over 200 varieties). Nevertheless, the traditional rice varieties have made a return due to the increased prevalence of non-communicable diseases (NCDs) partly attributed to the consumption of highly milled, refined rice. Thus, the current popularity of traditional Sri Lankan rice varieties is due to their nutritional and medicinal properties as evidenced by our indigenous medicine practices. In an era where sustainability is being considered, traditional rice cultivation which is environmentally friendly, highly tolerant to biotic stresses, pest and diseases and thrives in natural environments thus economically viable is immensely beneficial. This presentation is an attempt to shed light on the benefits of the consumption of traditional Sri Lankan rice. As mentioned earlier, traditional rice varieties are rich in carbohydrates, protein, fat, dietary fiber, antioxidants, and essential minerals (Fe, Zn, etc.). However, these data are available for uncooked rice. Research on raw uncooked flour of traditional rice demonstrates carbohydrates as the major nutrient with higher protein and fat in some varieties compared to improved varieties. Data on cooked rice and how different processing affects nutrients in rice is lacking. Prof. Ekanayake discussed how different processing and cooking affect nutrients in these traditional rice varieties. A comparative study was done for six traditional rice varieties which are differently processed (raw, raw polished 4% level, parboiled) and cooked. An elaboration to emphasize the scientific validity of their popularity in the current context of a high prevalence of NCDs and the method of processing of rice that would be much suitable for a healthy

foundation as the staple was made as a comparative study which demonstrated some significant results. The effect of processing and cooking and the variation in macronutrients, resistant starch, dietary fiber, and glycemic response of red and white Sri Lankan traditional rice demonstrated carbohydrates as the most prominent nutrient irrespective of processing or cooking. When considering freshly cooked rice the carbohydrate was least in parboiled rice due to high moisture thus indicating their suitability in "low carb" diets. The protein and fat were comparatively higher in unpolished whole grains followed by parboiled rice. A novel unreported observation was the augmentation in resistant starch and total dietary fiber following the cooking of differently processed rice. A noteworthy observation was the significantly (P<0.05) highly resistant starch in freshly cooked parboiled rice with the least total dietary fiber in raw polished rice. For all these fractions, the glycemic index was determined to emphasize the health benefits. The cooked rice portions were selected considering the glycemic load, having the same amount of digestible carbohydrates. All varieties of parboiled rice elicited low glycemic index whereas respective polished varieties elicited high GI. It was observed that in a cooked parboiled rice portion, the high moisture, high resistant starch, and low starch contributed to low glycemic response and glycemic index in comparison to raw whole (unpolished) rice or raw polished rice. Raw unpolished rice flour has a high potential to be used in the food industry as a healthy alternative. In fighting the high provenance of NCDs and improving the health of people while contributing to sustainability Sri Lankan traditional rice especially parboiled rice could play a significant role.