Tapping Indigenous Knowledge: Antioxidants in the Traditional Diet of the Maasai

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Keane Shore

[Photo: Maasai women carrying milk gourds]

The traditional diet of East Africa's Maasai people may contain powerful plant-based antioxidants with the potential to reduce cholesterol levels and provide other health benefits, according to research by Timothy Johns, a Canadian ethnobotanist at McGill University.

The Maasai are cattle herding pastoralists, about a million of whom inhabit the semi-arid lands of Kenya and Tanzania in an area bordered by Mount Kilimanjaro in the east, the Serengeti Plain in the west, and the Ngorongoro Crater in the south. Dr Johns' study took place near Loliondo, north of Ngorongoro.

Cattle are the basis of the Maasai economy, providing food mainly in the form of milk and meat. The Maasai are well known both for their strongly independent ways and their skill with weapons.

High-fat staples

They could also become known for the traditional foods and medicinal plants that supplement such high-fat staples of milk, meat and maize meal, Dr Johns reported during a natural products conference held earlier this year in Ottawa. The week-long event, featuring speakers from Africa and North America, was organized by the International Development Research Centre (IDRC) and l'Université du Québec à Chicoutimi.

According to Dr Johns, up to 66% of the calories consumed in the Maasai diet come from fat, primarily saturated fats — resulting in a total daily intake of more than 2,000 milligrams of cholesterol. Yet, their mean serum cholesterol levels are in the normal to low range. To put this in context, North American dietitians recommend that fats provide no more than 30% of the calories in a typical Western diet.

Indigenous knowledge

Dr Johns became interested in this phenomenon through a project funded by IDRC under its People, Land and Water Program Initiative, which examined the Maasai's indigenous knowledge of local resources. The project involved the McGill University-based Centre for Indigenous People's Nutrition and Environment (CINE), the Korongoro Integrated People's Oriented to Conservation (KIPOC), the Institute of Traditional Medicine, and the Tanzania Food and Nutrition Centre.

Dr Johns said there are several possible explanations for the Maasai's low cholesterol levels including their high fitness level, unknown genetic or dietary factors, their high calcium intake, or their relatively low caloric intake. Alternatively, their cholesterol levels may be influenced by substances found in traditional plant products, such as chew sticks and gums stripped from local plants. For example, some of the chew sticks they use contain saponins, a family of natural emulsifiers.

Plant products

So far, the research team has identified some 25 plant products used by the Maasai Among them are latex from the Ficus tree and roots and barks of various plants which are chewed to alleviate thirst. A second plant gum, which may have hypolipidemic (serum cholesterol-lowering) properties, is produced by a species related to the myrrh plant. Myrrh has been valued since biblical times for its medicinal properties.

Another source of antioxidants is *Acacia nilotica*, whose bark the Maasai use to flavour their meat soups and milk. Some crude acacia extracts seem to have stronger antioxidant properties than either vitamin C or vitamin E — the most popular antioxidants sold in the North.

Tremendous potential

"I think there is a tremendous potential for the development of these products," he said. "North Americans are obsessed with antioxidants right now." Dr Johns cautioned, however, that it is too early to plan the future commercialization of acacia compounds until more research is conducted, especially on their toxicity.

Moreover, the intellectual property rights to these products is a politically sensitive issue among the Maasai and in Tanzania, he added. Although IDRC has insisted that his group develop a fair and equitable intellectual property agreement, its status is still the subject of intense discussion among the Maasai themselves. Any agreement to develop plants under Maasai stewardship will also have to be worked out with CINE and the Institute of Traditional Medicine.

Important lessons

Dr Johns said his data illustrate the wisdom of the Maasai preserving their traditional way of life. "I think that there are important lessons to be gained from an examination of traditional ways of life, and that there are a lot of behaviours that we need to go back and look at more closely," he concluded.

Keane J. Shore is an Ottawa-based writer and editor. (Photo: T. Johns)

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