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Cashew Apple Juice, Anyone?

by Bruno Dubuc in Montreal

Imagine a fruit half-way between an apple and a pear, with a nut attached to its base. This curious work of nature is the cashew apple. Since the early 1980s, it has been widely cultivated in Vietnam - but only for its cashew nut.

The cashew apple itself is left behind to rot when the nut is harvested, despite the fact that the fruit is five to ten times richer in Vitamin C than an orange. Why such waste, when there is growing demand for exotic and healthful fruit juices?

The problem is that the cashew apple has an extreme astringency that puckers up your mouth and makes the juice undrinkable. Furthermore, the fruit bruises easily and spoils quickly from bacterial action.

Now, however, a research team in Vietnam's Ho Chi Minh City and a Quebec company, Lassonde Technologie of Rougemont, think they have the answer to this double jeopardy. Thanks to IDRC support, the partners hope their efforts will lead to commercial production of cashew apple juice within two years.

"Extracting juice from cashew fruit by heating and pressing it is no more difficult than making ordinary apple juice," explains Richard Couture, the chief researcher for the project at Lassonde Technologie. The problem is getting rid of the astringency - the focus of the researchers' work. The chemicals that cause this effect are polyphenols, which are rather like the tannin found in wine. The company has already had some success testing different techniques in a pilot project and, says Dr. Couture, "we are quite hopeful that we can develop a viable industrial-scale process for eliminating the astringency."

On the Vietnamese side, Dr. Nguyen Xich Lien of the Polytechnical University of HCM City leads a multidisciplinary team of scientists from several Vietnamese research centres. Dr. Pham Thanh Binh of Thu Duc University of Agriculture and Forestry, for example, is responsible for socio-economic aspects of the work.

The project promises significant social and economic benefits, especially for the farmers who grow the fruit and the workers (mainly women) who harvest it. With little additional effort and expense, these people could see their income rise substantially, if this previous waste by-product becomes a highly marketable commodity.

There is already a factory in the area, belonging to DONA Fruit Canning, which could easily be converted to handle the local cashew apples before they spoil. Transportation and processing of this new raw material will create several hundred jobs and generate sizable new revenues for the company. An environmental impact assessment of the project is to be carried out by Dr. Tran Ung Long of the Institute of Tropical Technology and Environmental Protection. Any such impact is expected to be minor, since the process requires only simple techniques and few chemicals. A researcher at the Institute of Agricultural Sciences of South Vietnam, Dr. Nguyen Nghi, is even planning to experiment with drying the cashew

apple pulp left from the pressing process, for use as livestock feed.

The research agreement calls for several exchanges between Vietnamese and Quebec scientists. Already one Vietnamese student has been at Laval University since last September working on his Master's degree. For his thesis on cashew apple juice, he will conduct experimental work at Lassonde Technologie and at Agriculture Canada's Centre for Food Research and Development at St. Hyacinth, Quebec.

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