

BEAUTIFUL, FUNCTIONAL RATTAN

MARK TIMM

Perhaps you're sitting in a rattan chair right now. Perhaps you got this magazine from a rack made of it. Rattan has become so popular over the past few decades that it has literally and figuratively become 'part of the furniture'.

You're not likely to trouble yourself much about the origins of this cane material — any more than you would about the origins of the wood in any other furniture.

But rattan may be threatened with extinction. Demand is so great that immature plants are being harvested before they can produce seeds. As a result, natural growing stocks of the plant are dwindling.

Rattan, a climbing cane plant, is a member of the palm family. There are 14 genera and 600 species growing throughout tropical Asia and West Africa. The longest reported specimen was a cane which grew to 168 metres in length.

Collecting rattan in the forest is unpleasant and dangerous work. The plant's barbed whips are a constant source of irritation and there is always the risk of dead tree branches falling on the harvesters' heads as they try to pull the rattan cane out of the tree canopy. As the cane is dragged down, the harvesters usually twist it around a tree trunk to remove any thorny leaf sheaths.

Once the canes have been cut into lengths and transported out of the forest, their outside layer is stripped off and they are left to dry for about a week. Further processing, such as washing, rubbing, boiling in oil, and fumigation may be done either before or after the rattan is exported for manufacture into consumer products.

Important export

Because almost all rattan grows wild and is being harvested so fast, little is known about how much rattan is left or how long it will last.

Next to timber, rattan is Malaysia's most important forest product. In 1982, total exports of the cane, either raw or processed, were worth US \$5.7 million.

Penninsular Malaysia's *orang asli* (aborigines) traditionally used rattan to make baskets and other useful items. It was also an important source of income as they could haul it out of the forest and sell it to processors.

As wicker has been replaced by plastic, and forest life has given way to city jobs, rattan has become less important to the *orang asli*. However, there have been efforts to intercrop rattan with rubber and other crops so that farmers

A rattan furniture factory in China.



Photo: Denis Sing / IDRC

can grow the cane to supplement their incomes.

Malaysia is home to nine genera and 104 species of rattan — including *Calamus manau*, which is the most popular in the furniture industry. Unfortunately, manau cane is also the species most endangered by overharvesting.

Enter the Forest Research Institute of Malaysia (FRIM), in Kepong, just outside Kuala Lumpur. FRIM is home to the Rattan Information Centre and the RIC Bulletin — an internationally circulated, quarterly newsletter started several years ago in response to growing academic and industrial interest in rattan.

Because of the disappearance of wild cane and because of the need for adequate nursery stock to supply any future commercial industry, FRIM has been experimenting for the past three years with tissue culture propagation of rattan.

The project has been funded since 1984 by IDRC, which provided equipment and cash as well as six weeks of training in tissue culturing at the University of Calgary, in Canada, for the principal researcher, Aziah Mohamed Yusoff.

Mrs Aziah is experimenting with a seldom-used tissue culture technique known as callus formation. Mature embryos from the plant's seeds are put in a growth medium and produce masses of "callus" cells. These cells are put in another medium to produce somatic embryos — tissue from which shoots can develop. Another growth medium induces the creation of more somatic embryos and of shoots. Finally, the shoots are placed in a rooting medium where plantlets develop.

The reason callus formation is an unpopu-

lar tissue culture method is that it takes as long as one year. Also, mutation can occur during the process, which makes it interesting for researchers, but aggravating for plant breeders.

Mrs Aziah is hopeful that recent work she has done with another, more efficient method known as adventitious shoot formation may hold promise.

Lack of protective coat

Getting the plantlets to survive in soil plots has been a major bottleneck for the research project. Mrs Aziah is investigating the potting medium, root conditions, and fungal attacks as possible reasons for the poor survival rate. However, she thinks the main problem is that the leaves of plants grown in the test tubes lack the waxy coating that protects normal plants from dehydration.

The conditions in which Mrs Aziah's rattan plantlets grow are a far cry from those of the Malaysian jungle. Shoes must be removed before entering the sterile medium-preparation area which is equipped with steam sterilizers and a cabinet for regulating and purifying the air during transfers from one test tube to another.

Ultimately, FRIM might supply plantlets to a commercial growing industry if lab costs could be brought down. But there is little talk about commercial scale-up at this stage. "Our main aim at this moment," says Mrs Aziah, "is to see whether the method is viable for the conservation of the species." ■

Mark Timm is a Canadian freelance journalist who writes on Southeast Asian affairs for several North American, British, and Asian publications.