

CASE STUDY

Patenting a Gene

Prof Asis Datta of the Jawahar Lal Nehru University, New Delhi, is one of the top most molecular biologists working in the country. His research work is mainly on crops for tapping genes that code for proteins. He has filed a number of patents in India and one in the US. Recently he filed a US patent for a gene that codes for lysine in the amaranth plant. The gene, he says, can be transferred to cereals like rice and wheat to improve their nutritional quality.

How did he hit upon the idea of working with the amaranth gene?

"There are many reasons", says Prof Datta, "Amaranth or *ramdana* as it is known in India, is one of the world's most nutritious grains and is grown across India in traditional farming systems. So it was our obvious choice."

Amaranth (various species of *Amaranthus*) is a broad-leaved plant and one of the few non-grasses that produce significant amount of grain. It can be easily grown, resists drought, heat and pests and readily adapts to new environments. It is used not only in India but also in many latin American countries.

It was in 1972 that a discovery by an Australian plant physiologist, John Downton focussed attention of the international scientific community on amaranth. He found that

the seeds contained an unusually high percentage of protein and that the protein had exceptional quality. It had an unusually high content of the amino acid lysine. The common cereals wheat, rice and corn are considered 'incomplete' because they lack sufficient lysine for optimum human health. If the amaranth gene could be transferred to wheat or rice their nutritional quality could be improved considerably.

Prof Datta began his search for the all important gene about eight years ago. He has a strong molecular biology team which carried out the painstaking search and finally succeeded in pinpointing the gene.

Did he think of filing a patent when he started the work? "Yes" says Datta, "The idea of patenting was already there because our lab has already filed Indian patents for DNA fragments in other organisms like *candida albicans*".

Before filing a patent for the newly discovered gene in the US, Prof Datta had filed a patent in India. "We did this because filing an Indian patent is not very expensive," he said. The patent in US was filed by an attorney and the claim has been approved. Filing a patent in a foreign country is very expensive, says Datta. Funding for this patent came from the Department of Biotechnology.