

Caffeine-free tea and coffee on the horizon

Researchers at the Institute of Biomedical and Life Science, Glasgow University, the United Kingdom, along with researchers at Ochanomizu University, Japan, may have uncovered a way of modifying coffee using molecular genetic techniques to produce a full-flavoured coffee without the caffeine.

Caffeine, a complex purine alkaloid, requires many stages in its biosynthesis. Researchers cloned the gene for a crucial enzyme, caffeine synthase, which catalyses the final two steps in the caffeine biosynthetic pathway and without which the coffee plant remains caffeine-free. By employing genetic techniques, the team isolated the gene which codes for the protein. Under laboratory conditions, the gene was spliced into *E. coli*, it was proved that the protein turned the precursor chemicals into caffeine, completing the caffeine biosynthesis chain.

This discovery opens up a new way to block the caffeine biosynthesis pathway and create naturally caffeine-free tea or coffee, both of which could be commercially significant. One approach would be to put the gene into the plant in an anti-sense orientation to block expression of the crucial enzyme. However, it would take 5-10 years to be able to have a caffeine-free coffee bean available commercially. *Contact: Mr. Alan Crozier, Bower Building, Glasgow University, Glasgow G12 8QQ, Scotland, the United Kingdom. Tel: +44 (141) 3304 613. Fax: +44 (141) 3304 447. (Website: <http://www.bioresearchonline.com>)*