[*J. Food Sci. Technol.*, **37**, 139-143 (2000)] [Lab. of Pharmacognosy]

Effects of Acid and Amine on the Formation of Red Pigment from Genipocidic Acid.

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It has been shown that aglucone of geniposidic acid reacts with amino acid in the presence of organic acid under anaerobic condition to yield red pigment. The basic conditions for the enzymic preparation of the red pigment from geniposidic acid and amine were investigated. Organic acid upon adjusting the pH of reaction mixture showed deepening red coloration effects, additionally. Further, di- or tri-carboxylic acid with a pK1 of 3 to 4 was preferable to inorganic acid and monocarboxylic acid for the formation of red pigment. An α-amino group of the amino acid resulted in slow coloration and intense red colour than β- and γ-amino groups.

[*Chem. Pharm. Bull*, **48**, 415-419 (2000)] [Lab. of Pharmacognosy]

A Tetrahydroisoquinoline-monoterpene Glucoside and an Iridoid Glucoside from *Alangium kurzii*.

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From the leaves of *Alangium kurzii*, a new tetrahydroisoquinoline-monoterpene glucoside, 6-O-methyl N-deacetylipecosidic acid and a new iridoid glucoside, 10-O-benzyladoxosidic acid, were isolated along with alangiside, demethylalangiside, 6"-O-β-D-glucoside, uridine and four known flavonoid glycosides. The structures of new glucosides were determined on the basis of spectroscopic and chemical methods.

[*Phytochemistry*, **53**, 345-348 (2000)] [Lab. of Pharmacognosy]

Stimulation of the Production of Hypericins by Mannan in *Hypericum perforatum* Shoot Cultures.

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Shoot organ cultures were established from callus derived from anthers of *Hypericum perforatum* flowers and the effect of elicitors on hypericin and pseudohypercin prodction in shoot organ cultures was investigated. Mannan stimulated pseudohypericin production up to four fold (0.82 mg/g dry wt) and hypercin production up to two fold (0.04 mg / g dry wt). β-1,3-glucan and pectin slightly stimulated pseudohypercin production (ca. two fold), but had no effect on hypercin production. On the other hand, yeast extract showed no stimulatory effect on either hypercin or pseudohypercin production

[*J. Chromatogr. B*, **738**, 3-15 (2000)] [Lab. of Pharmacognosy]

Stimutaneous Analysis of Shikimate-Derived Secondary Metabolies in *Lithospermum erythrorhizon* Cell Suspension Cultures by High-Performance Liquid Chromatography.

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A high-performance liquid chromatography (HPLC) analysis system based on a water-acetonitrile gradient program was established for simultaneous quantification of shikimate-derived secondary metabolites in cultured cells of *Lithospermum erythrorhizon*. The cells cultured in pigment production medium (M-9) are capable of producing five highly hydrophilic compounds such as p-hydroxybenzoic acid-O-glucoside and lithospermic acid B, as well as eleven lipopholic compounds including echinofuran B and acetylshikonin. In addition to the wide polarities of those compounds, many of them are unstable under light, dryness, oxygen and heating. Thus a new extraction procedure for all these compounds was also established by use of ultrasonification under ice-water chilling with MeOH as the solvent. This procedure was applied to the quantitative analysis of these compounds in cell cultures and hairy root cultures of *Lithospermum*, and in the intact plants as well.