Acacia

Synonyms / Common Names / Related Terms
Acacia arabica, Acacia arabica gum, Acacia aulacocarpa, Acacia auriculiformis, Acacia baileyana, acacia bark, Acacia catechu, Acacia caven, Acacia concinna, Acacia confusa (ACTI), Acacia coriacea, Acacia dealbata, Acacia farnesiana, Acacia floribunda, Acacia glaucoptera, Acacia greggii, acacia gum, Acacia lenticularis, Acacia longifolia, Acacia melanoxylon, Acacia mellifera, Acacia nilotica, Acacia pilispina, Acacia pycnantha, Acacia senegal, Acacia senegal (L.) Willd., Acacia seyal, Acacia tenuifolia, Acacia tortilis sp. raddiana, Acacia tortuoso, Acacia victoriae (Bentham), black wattle, blackwood, catclaw acacia, espinillo negro, Fabaceae (family), gastrilis, gomme arabique, gomme de Senegal, gum arabic, gum senegal, huizache, ker, khadira, kikar, Leguminosae (family), mimosa, miswaki, Robinia pseudoacacia, silver wattle, Sydney golden wattle, wattles, white acacia seeds.

Mechanism of Action

Pharmacology:

- **Constituents:** The applicable part of acacia is the gum, which mainly consists of arabic acid, which becomes arabinose, galactose, and arabinosic acid when hydrolyzed. Acacia gum is highly water-soluble.

- **Anti-inflammatory effects:** Avicins repress-ent a new class of plant stress metabolites capable of activating stress adaptation and suppressing proinflammatory components of the immune system in human cells by redox regulation.5

- **Antitumor effects:** Acacia inhibits tumor cell growth and induces apoptosis, in part, by perturbing mitochondrial function.6 It has been shown to possess activity against P-gp.7,4,8,9

- **Avicins are selectively toxic to tumor cells at very low doses.10 Avicins D and G have been shown to have potent cytotoxicity activity (apoptosis) against human T-cell leukemia (Jurkat cells) in vitro.11

- **Antiplatelet effects:** Antiplatelet aggregatory activity of the extract of Acacia nilotica is mainly due to the blockade of Ca2+ channels. Evidence also suggests the involvement of protein kinase C.2

- **Hypoglycemic effects:** Acacia catechu extract decreased blood sugar of normal animals but was not reduced in diabetic rats. It is believed that the extract causes the pancreas to secrete more insulin in normal animals.12 Similarly, Acacia coriacea mixed into wheat bread (18 grams per 82 grams wheat flour) significantly reduced the initial rise in plasma glucose levels (p<0.05) and the area under the plasma glucose curve (p<0.005) in six nondiabetic subjects compared to flour alone.1 Insulin values were also lowered at 60 minutes (p<0.025) and 90 minutes (p<0.05).
References
4. Lo, Y. L., Hsu, C. Y., and Huang, J. D. Comparison of effects of surfactants with other MDR reversing agents on intracellular uptake of epirubicin in Caco-2 cell line. Anticancer Res 1998;18(4C):3005-3009. 9713500

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