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Cassia alata Linn

Cassia alata Linn. is known by different vernacular names in different regions which are as follows — English: Ring worm shrubs; Hindi: Dad murdun; Telugu : Metta-Tamara; Marathi: Dadoo Murdun; Tamil: Wandukall Seemee-Aghatie; Sinhalese: Attora; Burmese: Maizaligi; Sanskrit: Dad-rughna.

Cassia alata Linn. is Dicotyledonous gymnosperm, it belongs to Archichlamydeae group in which it belongs to the order: Rosales

Suborder : Leguminosineae
Family : Leguminosae
Subfamily : Caesalpinaedae
Genera : Cassia, having anthracene derivatives.

Cassia alata Linn. (Fig. 3.1) is a large shrub 8-12 ft in height; with very thick finely downy but spreading, irrgularly angled, glabrous branches. Leaves are subsile, 5-15 cm long, 8-12 in pairs, oblong-obtuse; minutely mucronate, rigidly subcoriaceous, glabrous or obscurely downy beneath, broadly rounded, oblique at the base. Rhachis narrowly winged on each side of the face, stipules deltoid, rigid, persistent, articulate, 6mm long. Flowers in short pedicles, in spiciform pedunculate racemes, the buds in yellow caducous bracts. Sepals obtuse; petals bright yellow with darker veins, broad ovate 3-4 cm long. Stamens very unequal, perfect stamen 7. The anthers are subequal or those of 2-3 lowest larger than others, 3 posterior filaments without anthers. Pods long, lingulate with a broad wing down the middle of each valve, membranous, dehiscent straight and glabrous 10-12 cm long and 1.3-1.6 cm broad. Seeds 30 or more in each pod.

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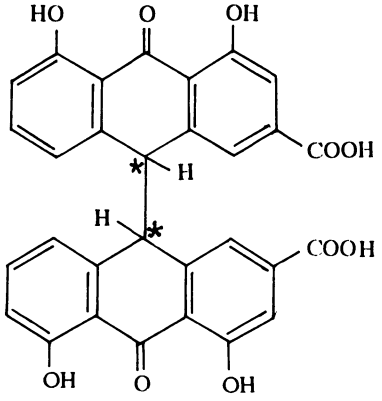
or air. The nature of the oxidizing agent is, however, important in that it affects the intensity and the shade of the coloration produced. It has been observed that using 3% H_2O_2 as oxidizing agent, an oxidation process can be developed which could be conveniently standardized. This gave a brilliant wine red colour of reproducible intensity. Using this colorimetry a reliable method for the determination of the active glycoside content and senna was secured.

It has been found that the senna glucosides are acids. Owing to the acid nature of these active principles, they are mostly present in the drug as water soluble salts and, in this form, are only extracted in small quantities by anhydrous solvents such as absolute ethanol. Extraction with water results in a very pronounced swelling of the material. Moreover water would also extract enormous quantities of other water soluble compounds present in the drug. The only possible means of extraction therefore is with aquesus organic solvents. Either the glucosides can be converted by means of organic bases into salts which are soluble in organic solvents or else they may be liberated by means of acids and extracted in the form of free acids.

Although the two glycosides sennoside A and sennoside B resemble each other very closely, an exact comparison reveals unmistakable difference in their melting points, solubilities and behavicur during crystallization.



Sennidins A & B

The above formula shows that the sennidin posses two asymetric carbon atoms, one at position 10 and another at

Collier; Fieller; Paris and Bellis (1948)[9] evaluated the purgative activity of senna extacts by comparison of bioassay and chemical assay of senna. The colorimetric method of Kussmaul and Becker gave good agreement with the biological assay of senna. The colorimetric method of Kussmaul and Becker gave good agreement with the biological assay with senna extracts. It was found that chemical assay gives good indication of cathartic activity of any preparation of senna, either freshly made or tested after storage at 45°C for four weeks.

Guillaume Valette (1949)[10] reported the effects of the glycosides of senna (Sennoside A and B) and their hydrolysis products on isolated intestine. They have no effect on isolated guinea pig colon. Both yield rhein on hydrolysis. Rhein produces contraction of the colon. It appears that the anthraquinone glycoside must undergo hydrolysis before they can exert a purgative action.

Lou(1949)[11] stated a bioassay method based upon the number of wet faeces per group of dosed mice applied to senna leaf, senna fruits and extracts of these drugs, pure glycosides (Sennoside A and B) and pure anthracene compounds (aloe - emodin and aloe - emodin anthranol).

Woods, Maribelle and Grote, (1951)[12] repeatedly administered Tinnevelly and Alexandrian senna to mice. Mice showed random variation in laxative action to the same drug when tested week after week but no tolerance developed to either Tinnevelly or Alexandrian senna on repeated administration.

Schmidt (1955)[13] studied the Pharmacology and toxicology of laxatives. The rat was found to be suited to test laxative substances. The substances tested were cascara; aloin; 1,8 dihydroxy anthraquinone; senna glycosides; diacetoxy dipheny lisatin; 4, 4' - dihydroxy triphenyl methane and (4, 4' - dihydroxy diphenyl) (6-methyl - 2 - pyridyl) methane and (4, 4' - dihydroxy diphenyl) (2 - quinolyl) methyl-methane. All drugs tested acted mainly on large intestine but all had a slightly stimulating effect on small intestine as well. Most of the laxatives have acute and chronic toxicity. The margin of therapeutic safety of the synthetic products was better than that of anthraquinone derivatives.

Guillaume Vallete and Marie Louise Hureau (1957)[14] stated the mechanism of senna anthraglucosides actions. They showed that sennosides act directly on smooth muscles of the colon