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**Senna: Victorian Motion Power**

A podcast from the Garden of Medicinal Plants of the Royal College of Physicians by Professor Anthony Dayan, a Garden Fellow.

We grow *Senna corymbosa,* also called *Cassia corymbosa* or Argentine Senna, as a good example of this family of about 300 species of flowering legumes. Several species are well known as laxatives and others are used as ornamentals in landscaping and a few appear in certain Asiatic cuisines.

Egyptian senna, *S alexandrina,* is probably the most famous laxative species but the seed pods and tea made from the leaves of many other members of the family have the same effect because of the sennoside compounds they contain.

Tracing the history of Senna usage is complicated by the use of cassia lignea (cinnamon) and Cassia fistula which is a tree and is purgative. The earliest reference to Senna is by Serapion the Younger (probably a pseudonym, as nothing is known about him) who compiled a book of simple medicines, used in Arabic medicine in the early 13th century. It is not mentioned by Dioscorides, Galen or

The origin of Senna species is uncertain but is likely to have been in North Africa and perhaps in the nearby Arabian Peninsula. Many species of Senna are now established in every continent because of their adaptability to a wide range of climatic conditions. Historically, Alexandrian senna, *S alexandrina,* cultivated in Egypt and the same species named after a vigorous centre of production around Tinnevelly in South India, have been major suppliers to Western countries although commercial quantities are now produced elsewhere. World trade at present is probably about 40-50000 tons/year of which at least a third comes from the Indian sub-continent.

Historically, the laxative and purgative properties of senna plants first described by Arab physicians in the 10-11th centuries AD during the period of the Islamic Golden Age and that knowledge was spread into Europe, probably via trade in Senna and other goods along the Spice and Silk roads. There are accounts of Senna and its medicinal use in many of the classical Western and Eastern herbals and books of Materia Medica from the 12th century onwards, including those by Gerard in 1633, the original Pharmacopoeia Londinensis of 1618 and Culpeper in 1649. This use remained popular in many countries throughout the 19th and 20th centuries and persists even today despite changing medical ideas and eventually better appreciation of the normal physiological role and functioning of the colon and of individual variation in patterns of defaecation.

In the later 19th and early 20th centuries in Britain and other West European countries and the USA, almost as a distorted remnant of the ancient notion that imbalance of ‘bodily humours’ was responsible for ill health and frank diseases, the belief grew that the major reason for the production of faeces was to rid the body of harmful materials. If faeces were retained in the colon because they were not regularly evacuated undefined ‘harmful toxins’ would be absorbed from the colon resulting in general malaise and many forms of ill-health. The result were fashions for surgical removal of the colon, for colonic irrigation in fashionable spas, and the wide uptake of special foods to encourage the frequent production of stools. For many people regular use of a laxative at home became a normal practice in the belief that ‘clearing out’ the colon every day or so would maintain health and vitality. Various laxatives were employed especially senna preparations and Syrup of Figs although, as readers of Dickens amongst other Victorian authors and contemporary books on household management will recall, Cascara and the stronger Castor Oil were widely employed. Weekly or more frequent dosing of youngsters and adults was widely accepted at home and in official institutions. In almost all instances this would have been totally unnecessary as the normal, physiological frequency of bowel movements is an individual characteristic dependent on the diet and habit. These fashions have still only partly disappeared despite better understanding of the normal role of the bowels and growing medical if not popular awareness of the potential harm of over frequent use of laxatives.

Several types of anthraquinone glycosides are naturally produced in senna plants. In the colon they are hydrolysed, possibly by bacterial action, releasing the anthraquinones which undergo further chemical changes forming particularly rhein. That compound affects normal chemical signalling in the nerve network in the wall of the colon that controls its motility and other functions. The same substances also affect another normal function of the inner lining of the colon, which is to absorb water and certain salts back into the body. The laxative action of these sennosides is due to the combination of increased colonic motility and loss of water and potassium salts into the faeces producing bulkier, softer and more frequent motions.

If any of these laxatives is taken for a long time there is an increasing risk of permanent destruction of the nerve cells in the wall of the large intestine and of serious depletion of vital chemical salts from the body accompanied by abnormal pigmentation of the colon. The neural damage gradually results in failure of normal colonic mechanisms and so in permanent constipation creating the permanent need for artificial stimulants are used to force evacuation.

Senna plants can be an attractive decoration in the garden because of their bright yellow flowers in the summer. However, their misuse due to mistaken ideas about a normal bodily function can make them a harmful medicine if abused. They are widely registered as ‘Traditional Herbal Medicines’ so it is up to professionals and the public to use them responsibly - if at all.

864 words

Usual new closing statement.