THE USE OF PLANT RESOURCES IN THE MANAGEMENT OF
GASTRO-INTESTINAL DISORDERS IN ANIMALS

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In his long struggle to achieve victory over his problems, man has always turned to plants for help. This is specially so, when he was struck with his own ailments or of his domesticated animals. Nearly all cultures of the world, both ancient and recent, have heavily depended on plants as a therapeutic resource. No matter in what form these is used. Probably this practice started with ancient belief, myth and lore’s, developed into folk medicine and herbalism and finally has given birth to traditional system of medicine, appropriately call as Ayurveda, using local resources particularly plants and their products. The Ayurveda, an Indian indigenous system of medicine dates back to 1500-1800 B.C. The entire edifice of ancient Indian Medicine is based on the concept of a fundamental identity between man-animal and nature. Man and animals are microcosms constituted ‘Panch Bhutas’ viz. fire, water, air, earth and akash. During life time man and animals derive every thing, essential for life, through plants. Aryans were so earnest in their animal husbandry that they researched the means for alleviation of pains and sufferings through the use of local plant/herbal repertoires. With this search two systems of therapeutics i.e. Human Ayurveda and Animal Ayurveda appeared on the scene. The exponents of traditional system of therapy based on plant resources were ‘SALIHOTRA’, VISAMPAYANA, PALKAPYA AND NAKUL who glorified the art of healing in animals. Unfortunately system of medicine using plant resources in animals (Animal Ayurveda) fell into oblivion for many centuries. After a long period of disregard and decline, interest in herbal medicine is being renewed with considerable impetus the world over. More and more people are now realizing through out the world that “Nature is better” and inclined to get their animals treated with traditional therapeutic resources using richness of plant diversity. India has a vast repertoire of herbs and plants. During recent years, much attention is being focused to revive the glory of plant medicine. Many of the plants are now being scientifically evaluated in experimental disease models and finally in ailing subjects.

Of various ailments, diseases of gastro-intestinal system are more predominant. Traditional plant resources, having potential for managing gastro-intestinal diseases of animals and humans are described and discussed in this lecture.

Indigestion and Dyspepsia

The roots of Jateorhiza palmate (calumba) and Gentianae radix (Kutaki), fruits of Elettaria cardamomum (Elaichi), seeds of Coriandri fructua (Dahnia), seeds of Pimpinella anisum (Sonf), ripe fruits of Cuminum cuminum (Jira), dried kernel of Myristica fragrans (Jaiphal), wood of Picraenaquassoides spp., stem and roots of Aristolochia indica (Ishwarmul) and Tinospora cardifolia (Gulancha), dried rhizome of Acorus calamus (Bach), liquid from cut leaves of Aloes vera (Musabar) and rhizomes of Rheum palmatum (Rewanchini) have been reported to have bitter stomachic properties and therefore have been used in the management of indigestion in cattle. The use of dried
leaves and stem of *Centella asiatica*, dried ripe fruits of *Trachyspermum ammi* (Ajowan), *Terminalia belerica* (Bahera) has also been reported in the management of indigestion, dyspepsia and flatulence in humans. According to a report *Podophyllum hexandrum* is being used for curing indigestion/dyspepsia in animals by Nomadic Gaddi Shepherds in India. Preparations containing *Allium sativum*, *Andrographis paniculata*, *Centrattherum anthelminticum*, *Curcuma longa*, *Phyllanthus emblica*, *Picrorhiza kurrota*, *Trachyspermum emmi*, *Trigonella foenum graeceum* and *Zingiber officinale* herbs are being advocated for revival of appetite in animals. Roots of *Coleus forskohlii* (Forskolli) cooked in water and mixed with feed are fed to cattle with a loss of appetite (DeSouza and Shah, 1988).

Tripathi et al. (1982) evaluated an herbal formulation “Dhanya Panchaka Kashaya”, containing *Corriandrum sativum*, *Valerianna wallichii*, *Aegle marmelos*, *Cyperus rotundus* and *Zingiber officinale* in dyspepsia (Agnimandya) in man and found it highly efficacious in the management of hypo and hyperacidity dyspepsia.

### Gastric disorders and gastric ulcers

For the management of stomach-ache in animals and man, plants such as *Thymus linearinanz Boenninghausemia albiflora* are heavily relied upon. *Ainsliaea aptera* has also been found to be effective in controlling stomach-ache by Gaddi Shepherds of Himachal Pradesh.

*Emblica officinalis* and *Zinger officinale* have been reported to have good efficacy in the management of dyspepsia or indigestion in man and animals.

Roots of *Tinospora cordifolia*, *Withania somnifera* (Ashwaganda) and *Centella asiatica*; leaves of *Moringa oleifera*, *Gymnosporia Montana* and *Azadirachta indica* (Neem), plant parts of *Berberis asiatica*, *Bauhima variegate*, *Crataeva nurvala*, dried fruits of *Emblica officinalis* (Amla), unripe fruit pulp of *Musa paradisca* (Banana) and different myrobalans have been tried effectively in the management of gastric ulceration in rats, man and pigs.

Neem leaves has been evaluated for its anti-ulceroginic activity in rat models (Garg et al., 1993). The study reflected that Neem leaves decreased internal provoked gastric mucosal damage.

Roots and leaves extract of *Panax-ginseng* have been found to contain antiulcerogenic activities (Xiao-boSan et al., 1992) and is now widely used in China for the treatment of gastrointestinal disorders. *Cinnamomum cassia* and Chinese cinnamon contains anti-ulcerogenic compound and have been found highly efficacious in rat models. These compounds promote blood flow rather than reducing acidity.


Formulation containing bark of *Bauhinia variegate* (Kachnar), *Berberis asiatica* (Chitra), bark of *Crataeva nurvala* (Barna), *Garcina indica*, *Chebulic* (Herada), *Beleric* (Bahira) and *Embellic* (Amla) in pigs (Dixit,1987); and another formulation containing unripe fruit pulp of *Musa sapientum* (Banana), *Emblica officinalis* (Amla), *Terminalia chebula* (Harda) and *Terminalia belerica* (Bahira) in dogs (Chaurasia, 1998) have shown promising results in gastropathies.

**Colic, flatulence, acidity and gastritis**
Leaves of plant Agnimanthah spp., rhizome of *Zinger officinale* (Ginger), flower heads of Chamomilla recuita, seeds of Pimpinella anisum (Anise) and bark of *Ulmus rubra* have been employed in the management of hyperacidity, gastritis associated with pain and flatulence in man.

**Constipation or Impaction**

Many plants are reputed for inducing purging varying from mild luxation to drastic purging and hence these have been in routine use for the management of constipation or impaction. Some of the reputed plants for the purpose of inducing purgation are dried bark of *Rhino purshuianus* (sacred bark), dried leaflets of *Casia acutifolia* (Sanna makki), dried tubercle of *Ipomaea purga* (has no action in horse and cattle), dried roots of *Ipomaea arizubensis*, dried pulp of the fruits of *Citrullus coloeonthis* (*Indrayan*) (has limitation in horses and cattle), *Garcinia hanburie* (effective in the management of impaction of rumen, omasum and abomasums), oil of *Oleum tiglii* (Jamal ghota) (rarely advocated in dogs), dried unripe seeds of *Plantago ovale* (Ispaghula), roots of *Annona squamosa* (Sarifah), bark of *Morus alba*, dried root and bark of *Calotropis procera*, dried rhizome and root of *Podophyllum hexandrum* (Papra) and *Euphorbia cognate*.

**Diarrhoea and Dysentery**

Diarrhoea and dysentery of varied etiology are other important and common gastro-intestinal disorders of great clinical concern to both physicians and veterinarians. For the management of these ailments man has heavily relied upon plants or their products. Leaves of *Morinda umbellate*, dried entire aerial parts of *Andrographis paniculata* (Kalmegh or Bhunimba), dried stem and bark of *Tinospora cordifolia*, *Cimmiphora wighii*, *Strblus asper*, *Xeromphis spinosa*, seeds of *Annona squamosa*, bark of *Ficus benghalensis* and *C. wightii* have been in use for the management of diarrhoea and dysentery mainly in man. However, a few of these plants have been used in animals. Of these plants *C. wightii* has been claimed to have anti-amoebic properties also. Fresh unripe fruit of *Aegle marmelos* (Bael), dried unripe seeds of *Plantago ovale* (Ispaghula), dried aqueous extract of leaves and young shoots of *Uncaria gambier* (kath), *Acacia catechu* (Raktasar), *Berberis aristata* (Daru harida), *Holarrhoea antisyderstera* (Kutaj) and young twig excrescence of *Quercus infectoria* (Oak) are in common use for the control of diarrhoea in man and animals. *Boswellia serrata* (bark and resinous gum)- a potent immuno-stimulant and anti-inflammatory, has also been used in the management of diarrhoea and liver disorders. *Curcuma longa* (Turmeric) has properties to enhance digestion, protect liver and smoothen the irritable bowel.

**Jaundice and Hepatitis**

Root extract of *Calotropis procera*, bark of *Eclipta alba* (Bhringaraj), *Andrographis paniculata*, *Phyllanthus amarus* (Bhumi amalaki) had been in vogue for the treatment of viral hepatitis in man. Stem of *Tinospora cordifolia*, *Gymnosporia montana*, leaf extract of *Picrorrhiza kurroa* (Kutkin) are known to be useful in the management of jaundice in man and animals. Singh et al. (1978) investigated hepatoprotective efficacy of *Withania somnifera* in mice and rat models. Juice of the leaves of *Phyllanthus amarus* has been used in cholangio-hepatitis and hepatitis (Sodhi, 1992) in
animals and has shown hepato-protective response. Its roots are also used for digestive troubles in camels (Wealth of India, VIII). Srihari and others, (1982) have found hepatoprotective activity of Curcuma longa in hepatic acetaminophen toxicity in rats.

Many herbal preparations such as Liv-52, Livocare, Livfit and Yakriff containing herbs such as Capparus spinosa, Cichorium ctybus, Solanum nigrum, Terminalia arjuna (Arjun), Cassia occidentalis, Achillea millefolium, Tamarax galica, Eclipta alba (Bhringaraja), Phyllanthus amarus, Boerhaavia diffusa, Tinospora cordifolia, Berberis arista, Raphanus sativus, Emblica officianalis (Amla), Plumbago zeylanica, Embelica ribes, Terminalia chebutter (Haritake), Ocimum sanctum (Tulsi), Fumaria officinalis, Phyllanthus niruri (Bhumyaamalakee), Andrographis panniculata (Kalmegh), Azadirachta indica (Neem) and Aphanamixis polystachya (Rohitaka), are now available in the market for the treatment of liver diseases in animals and man and have been claimed to be efficacious.

Gastro-intestinal Parasitism

Although many plants have been listed as having anthelmintic activity, 23 have been tested against intestinal helminthes. For the control of gastrointestinal parasitism, Artemisia cina (Kirmala) in dogs and cats; Chinopodium ambrosoides against ascarids, strongyles; seeds of Butea frondosa (Pulas bij) against round worms, fresh dried seeds of Vernonia anthelmintica against ascarids and oxyuris; leaves of Annona squamosa, flower, leaf and roots of Moringa oleifera (Sahinjan), bark of Morus indica (Tut), Barringtonia acutangula and Aloes vera (Kattarvala) have been in vogue for decades. Extract of male fern from Dryopteris flixmas is used against Moniezia and other tape worms, and against Dicrocoelium and Fasciola. Kamala from the fruits of Mallotus philippensis is also used against tape worm, thread and round worms. Clinically Neem leaves have been found to be effective against human ascarids.

Alcoholic extract of Embelia ribes (Karkannie) (350mg/kg) has shown efficacy in pups infected with Taenia hydatigena, Multiceps multiceps and M. gaigera (Pandey, 1978); its seeds against tape worm of poultry.

Seeds of Carica papaya (Papita) have been used as anthelmintic agent and were equipotent to piperazine against Ascaridia galli and have been recommended as suitable remedy for mass treatment of ascariasis and threadworm.

Other plants possessing anthelmintic activity are Aegle marmelos (Bel), Alangium lamarcckii (Akola), Amoora rohituka (Harinhar), Artemisia maritime (Kirmala), Capparis deciduas (Kachra), Clerodendron infortunatum (Bhant), C.phlomidis (Urania), Cucurbita maxima (Kashiphal), Dalbergia latifolia (Krishna sinsapa), Datura metel (Dhatura), Fiscus religiosal (Peepal), Punica granatum (Anar), Heychechtum coronarium, Hedychium spicatum (Kapur kachari), Inula racemosa (Rasan), Jasminum arboriscens (Chameli), Lawsonia inermis (Mehdi), Melia azadarch (Bakayan), Mentha piperita (Pipermin), Mimosa pudica (Lajalu), Momordica charantia (Karela), M.dioica (Dhar karela), Morus alba (Pers), Mucuna pruriens (Kavanch), Psoralea corylifolia (Babchi), Vernonia anthelmintica (Bakchi) and Veronia tres (Sahadevi).
References


