

USE OF FRESH PARTS OF MEDICINAL PLANTS FOR HEALTH AND PRODUCTION IN LIVESTOCK – A NEW CONCEPT OF FARMING

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ABSTRACT: Farm animals are reared for production to meet up the demand for animal protein in human. Various modern medicines are extensively used for production as well as treatment and prevention of diseases of animals, which can ultimately reach us through food chain. Herbs are now considered as an important source of alternative medicines. The Ayurvedic medicines prepared by manufacturers contain processed plant parts and added with preservative and other chemicals in many cases. The present way of research on herbal medicine follows the path of identification of active principles from the extracts of preserved parts of medicinal plants after testing of their efficacy in laboratory. This concept of research have the limitation of loss of many aromatic and other phytochemicals present in the living plant, which may have very important role when used together. Animals maintained in modern farm may be given relief from modern medicines in minor and moderate ailments, cure of problems related with their production with the validated fresh plant medicine available from the plants cultivated adjacent to the farm area. Consulting the reports of ethno-botanical study, a preliminary list of medicinal plant is prepared which are having antipyretic, analgesic, wound healing, immunostimulant, hepato-protective, fertility enhancing, pregnancy assisting, lactation assisting, anthelmintic, astringent, expectorant, purgative and anti-flatulent, nutraceutical, antiseptic, anti-dermatitis, anti-dysenteric and anti-enteric, hematenic, stomachic, diuretic and kidney stone removing effects and insecticidal or insect repelling effects. This list may be enriched further and plants may be selected for a farm from these groups according to the agro-climatic condition of the area, disease prevalence, problems encountered during farming practice and other requirements of the farm. Validation of reported effects of the plants is to be performed in fresh condition, so that parts of the plants can be utilized by the trained personals of the farms.

Key Words: Fresh parts, medicinal plant, Health, Livestock, Farming.

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INTRODUCTION

Present day farm animals are the successors of their free living ancestors. Domestication of animals was started thousands of years ago as documented in the signs of the ancient civilizations. As most of the modern farm animals are herbivorous, their body system is accustomed with utilization of nutrients available after digestion of plant materials. Concept of addition of animal protein, minerals, growth promoters, pre and probiotics etc. in the feeds of farm animals is need based with less expenditure through feeding, breeding and management. As a part of management, we developed health care systems of the farm animals with the tools available in our hand for our use. In many cases that was not properly effective due to the physiological / systemic differences among man and different species of animals, but we adhered with our concept. Sometimes we used the resources *at libidum* among farm animals. Apart from the issue of huge financial involvement, the dangers behind this concept are appearing in last few years. Mad cow disease, gathering of toxic chemicals in our body from animal, fish and bird products and expression of their effects through various diseases, increased incidence of several zoonotic diseases, development of resistance among micro-organisms against antibiotics, development of superbug etc. are examples.

In this context, the idea of using plant derived medicines among the animals is a good concept. But the pharmaceutical companies producing various herbal medicines for animals are following the same concept of preparation of marketable medicines like that of modern allopathic medicines. Parts of the reported medicinal plants are stored, processed and mixed with chemical preservatives, coloring

and palatable materials before marketing. In the way of collection, transportation, storage and processing of these plant parts, almost all the volatile and aromatic ingredients may be lost. Some of the temperature and humidity sensitive ingredients may also become ineffective due to these reasons.

CONTEMPORARY METHODS OF STUDY

Plants reported to have any medicinal effect are now identified by ethno-botanical study. After identification and characterization, the reported plant parts are collected and preserved. Then methanolic, ether, acetone or aqueous extract of the preserved plant part is stored. Then these are tested for their reported medicinal use *in vitro* or among *in vivo* animal models, either in this form or in semi-purified or purified form after extraction of active principles. The efficacy of the extracted part or the separated active principles cannot show the total effect of the plant part in question, as many of the principles become lost during the whole process.

PROPOSAL FOR FARMING WITH NEW CONCEPT

To overcome the problems of partial study of effectiveness and to utilize (and also to validate when needed) the medicinal effect of reported plants the animal farms, a new concept may be designed.

- a) Every animal farm may be added with a small medicinal plant garden of selected plants for supply of fresh inputs.
- b) These can be used for better production and prevention and treatment of minor and moderate ailments.
- c) Trained personals may be used for mixing

of parts of plants and their use.

d) Study for proper validation of the medicinal effect of known, common use as well as non-familiar use of plants may be done.

e) Study on effectiveness and side effects of combined use of parts of plants may be done.

f) Parts of the plants grown at different agro-climatic condition may be mixed as a part of mixture, if required.

g) Standardization of dose schedule are also to be determined for that purpose.

h) Beside supplying parts for medicinal use, many of these plants may supply green fodder to the animal.

PLANTS WHICH MAY BE USED IN ANIMAL HUSBANDRY

According to available literature, several plants are reported to have medicinal properties on diseases of human and animals. Similar effects on same type of diseases/ailments of both human and animals are observed. These reports may be gathered to prepare a knowledge base for further study. Like modern medicines, research for validation of such claims may be started on animals. As herbivorous animals took herbs as their normal diet, they may be given such oral medicinal herbs after a trial on laboratory animals, particularly to know the possible toxic effects of the medicinal plants. Study of medicinal effects by local application of plant parts may be started on laboratory animals as well as on farm animals in a limited scale primarily. Wide spread use of effective plants may be started afterwards.

Plants having possible effects on prevention and cure of common health and production related problems are listed in twenty groups. This primary list contains the names of some representative plants available mainly in plains

of our country which may be modified with gathering of more information.

Plants with antipyretic effect:

Nyctanthes arbor-tristis L., *Hemidesmus indicus* (L.) R. Br. ex Schult (Jain 1995), *Tylophora indica* (Burm. f.) Merr., *Coscinium fenestratum* (Goetgh.) Colebr (Jain 1995), *Aristolochia indica* L. (Jain 1995), *Stephania japonica* (Thunb.) Miers, *Solanum virginianum* L., *Solanum americanum* Mill., *Centella asiatica* (L.) Urb., *Rauwolfia serpentina* Baill. (Jain 1995), *Tinospora cordifolia* (Willd.) Miers (Jain 1995, Biswas *et al.* 2009), *Andrographis paniculata* (Burm.f.) Nees (Jain 1995), *Swertia chirata* Buch.-Ham. ex Wall. (Jain 1995), *Aloe vera* (L.) Burm.f., *Sida cordifolia* L. (Jain 1995), *Peganum harmala* L. (Jain 1995), *Capparis zeylanica* L. (Lather *et al.* 2010), *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn., *Leucas aspera* (Willd.) Link (Sunilchandra *et al.* 2008) *etc.*

Plants with Analgesic effect:

Cassia fistula L., *Curcuma longa* L., *Aristolochia indica* L., *Butea monosperma* (Lam.) Taub., *Dillenia indica* L., *Mikania scandens* (L.) Willd., *Ficus racemosa* L., *Commiphora mukul* (Hook. ex Stocks) Engl., *Vitex negundo* L., *Ricinus communis* L., *Vanda tessellata* (Roxb.) Hook. ex G.Don, *Piper longum* L. (Jain 1995), *Tinospora cordifolia* (Willd.) Miers, *Zingiber officinale* Roscoe, *Moringa oleifera* Lam., *Argyreia nervosa* (Burm. f.) Bojer, *Clitoria ternatea* L. (Biswas *et al.* 2009), *Azadirachta indica* A.Juss., *Peganum harmala* L. (Jain 1995), *Pergularia daemia* (Forssk.) Chiov. (Jain 1995), *Saussurea costus* (Falc.) Lipsch. (Jain 1995), *Capparis zeylanica* L. (Lather *et al.* 2010). *Antidesma*

montanum var. *montanum*, *Acacia senegal* (L.) Willd., *Glycyrrhiza glabra* L., *Rotheca serrata* (L.) Steane & Mabb. (Sunilchandra *et al.* 2008) etc.

Plants with wound healing effect :

Barleria lupulina Lindl., *Blumea lacera* (Burm.f.) DC., *Vigna unguiculata* subsp. *unguiculata* (L.) Walp., *Adhatoda vasica* Nees, *Cynodon dactylon* (L.) Pers. (Annon 1950), *Curcuma longa* L., *Glinus lotoides* L., *Eupatorium triplinerve* Vahl, (Annon 1952), *Aloe vera* (L.) Burm.f. (Biswas *et al.* 2009), *Mikania scandens* (L.) Willd., *Artemisia nilagirica* (C.B. Clarke) Pamp. (Pattanayak *et al.* 2012), *Croton bonplandianum* Baill. (Pal and Jain 1998), *Dillenia indica* L., *Diospyros malabarica* (Desr.) Kostel., *Eclipta prostrata* (L.) L., *Tagetes patula* L., *Pandanus foetidus* Roxb. (Pattanayak *et al.* 2012), *Achyranthes aspera* L. (Chopra and Nayer 1956) *Anisomeles indica* (Baranwal *et al.* 2012, Pattanayak *et al.* 2012), *Aristolochia indica* L. (Jain 1995), *Bambusa bambos* (L.) Voss (Pattanayak *et al.* 2012), *Bryophyllum pinnatum* (Lam.) Oken (Ambasta 1986), *Capparis zeylanica* L. (Lather *et al.* 2010, Pattanayak *et al.* 2012), *Senna sophora* (L.) Roxb. (Chopra and Nayer 1956), *Coccinia grandis* (L.) Voigt (Pattanayak *et al.* 2012), *Heliotropium indicum* L. (Annon 1959), *Litsea glutinosa* (Lour.) C.B. Rob. (Ambasta 1986, Pattanayak *et al.* 2012), *Solanum virginianum* L. (Jain 1995), *Helianthus annuus* L. (Roychowdhury 2008), *Garcinia morella* (Gaertn.) Desr. (Roychowdhury 2008), *Jasminum auriculatum* Vahl, (Roychowdhury 2008), *Cyanthillium cinereum* (L.) H. Rob. (Roychowdhury 2008), *Sida cordifolia* L., *Terminalia chebula* Retz.

(Jain 1995), *Withania somnifera* (L.) Dunal (Jain 1995), *Senna alata* (L.) Roxb. (Sunilchandra *et al.* 2008) etc.

Plants with immunostimulant effect:

Tinosporas cordifolia (Willd.) Miers, (Roychowdhury 2008, Biswas *et al.* 2009) *Andrographis paniculata* (Burm.f.) Nees, *Centella asiatica* (L.) Urb., *Withania somnifera* (L.) Dunal, *Phyllanthus emblica* L., *Asparagus racemosus* Willd., *Boerhavia diffusa* L. (Roychowdhury 2008), *Ocimum tenuiflorum* L. (Sunilchandra *et al.* 2008), *Curcuma longa* L. (Roychowdhury 2008), *Azadirachta indica* A. Juss. (Roychowdhury 2008), *Zingiber officinale* Roscoe (Roychowdhury 2008), *Hygrophila auriculata* (Schumach.) Heine (Jain 1995), *Capparis zeylanica* L. (Lather *et al.* 2010) etc.

Plants with Hepato-protective property:

Andrographis paniculata (Burm.f.) Nees (Jain 1995), *Phyllanthus niruri* L. (Roychowdhury 2008), *Pterocarpus marsupium* Roxb., (Roychowdhury 2008), *Solanum americanum* Mill., *Azadirachta indica* A. Juss., *Centella asiatica* (L.) Urb., *Ocimum tenuiflorum* L., *Phyllanthus emblica* L. (Jain 1995), *Phyllanthus amarus* Schumach. & Thonn., *Tinospora cordifolia* (Willd.) Miers, *Boerhavia diffusa* L. (Jain 1995), *Phyllanthus fraternus* G.L. Webster, *Ricinus communis* L., *Swertia chirata* Buch.-Ham. ex Wall. (Jain 1995), *Peganum harmala* L. (Jain 1995), *Adhatoda vasica* Nees, *Wedelia chinensis* (Osbeck) Merr. (Biswas *et al.* 2009), *Curcuma longa* L., *Gardenia resinifera* Roth, *Embllica officinalis* Gaertn., *Woodfordia fruticosa* (L.) Kurz (Sunilchandra *et al.* 2008) etc.

Plants with effect on fertility and libido:

Withania somnifera (L.) Dunal (Jain 1995), *Tribulus terrestris* L. (Jain 1995), *Aloe vera* (L.) Burm.f., *Saraca indica* L. (Biswas *et al.* 2009), *Asparagus racemosus* Willd., *Bacopa monnieri* (L.) Wettst., *Sida cordifolia* L. (Jain, 1995), *Mucuna pruriens* (L.) DC. (Roychowdhury 2008), *Ipomoea mauritiana* Jacq. (Roychowdhury 2008), *Cheilocostus speciosus* (J.König) C. Specht (Roychowdhury, 2008), *Piper betle* L. (Roychowdhury 2008), *Tinospora cordifolia* (Willd.) Miers (Jain 1995), *Cinnamomum verum* J. Presl, *Azadirachta indica* A. Juss. (Sunilchandra *et al.* 2008) etc.

Plants with effect on pregnancy and parturition:

Ficus religiosa L., *Nelumbo nucifera* Gaertn., *Hibiscus rosa-sinensis* L., *Pergularia daemia* (Forssk.) Chiov. (Jain 1995), *Asparagus racemosus* Willd., *Tectona grandis* L.f., *Woodfordia fruticosa* (L.) Kurz, *Mimosa pudica* L., *Cucurbita pepo* L. (Sunilchandra *et al.* 2008) *Rauwolfia serpentina* Baill., *Abrus precatorius* L., *Mesua ferrea* L., *Saraca asoca* (Roxb.) Willd. (Jain 1995) etc.

Plants with effect on lactation:

Acacia nilotica (L.) Delile, *Ipomoea mauritiana* Jacq., *Ipomoea aquatica* Forssk., *Euphorbia hirta* L. (Jain 1995), *Asparagus racemosus* Willd. *Mimosa pudica* L. (Sunil chandra *et al.* 2008), *Madhuca longifolia* (J.König ex L.) J.F. Macbr. (Jain 1995), *Leptadenia reticulata* (Retz.) Wight & Arn., *Ambroma augusta* (L.) L.f. (Roychowdhury 2008), *Cuminum cyminum* L. (Roychowdhury 2008), *Nigella sativa* L. (Roychowdhury 2008), *Ficus hispida* L.f. (Sunilchandra *et al.* 2008)

Abrus precatorius L. (Roychowdhury 2008), *Tinospora cordifolia* (Willd.) Miers (Roychowdhury 2008), *Zingiber officinale* Roscoe (Roychowdhury 2008) etc.

Plants with Anthelmintic property :

Vernonia anthelmintica (L.) Willd. (Jain 1995), *Embelia ribes* Burm.f., *Mallotus philippensis* (Lam.) Müll. Arg. (Jain 1995), *Butea monosperma* (Lam.) Taub. (Jain 1995, Biswas *et al.* 2009) *Andrographis paniculata* (Burm.f.) Nees (Jain 1995), *Holarrhena pubescens* Wall., *Punica granatum* L., *Acorus calamus* L., *Swertia chirata* Buch.-Ham. ex Wall. (Jain 1995), *Artemisia nilagirica* (C.B. Clarke) Pamp. (Jain 1995), *Adhatoda vasica* Nees, *Azadirachta indica* A. Juss., *Curcuma longa* L., *Areca catechu* L. (Jain 1995), *Ficus racemosa* L., *Nyctanthes arbor-tristis* L., *Euphorbia hirta* L. (Jain 1995), *Peganum harmala* L. (Jain 1995), *Cullen corylifolium* (L.) Medik. (Jain 1995), *Cucurbita pepo* L. (Sunilchandra *et al.* 2008), *Albizia lebbek* (L.) Benth. (Biswas *et al.* 2009) etc.

Plants with astringent property:

Andrographis paniculata (Burm.f.) Nees, *Azadirachta indica* A. Juss., *Aegle marmelos* (L.) Corrêa (Jain 1995), *Cyperus rotundus* L. (Roychowdhury 2008), *Terminalia chebula* Retz. (Roychowdhury 2008), *Piper nigrum* L. (Roychowdhury 2008), *Eclipta prostrata* (L.) L. (Roychowdhury 2008), *Symplocos racemosa* Roxb. (Jain 1995), *Saraca indica* L., *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn., *Prunus serotina* Ehrh., *Acacia catechu* (L.f.) Willd., *Gardenia resinifera* Roth (Sunilchandra *et al.* 2008), *Plectranthus amboinicus* (Lour.) Spreng. (Biswas *et al.* 2009) etc.

Plants with expectorant and anti-bronchitis property:

Adhatoda vasica Nees (Jain 1995), *Solanum virginianum* L., *Solanum americanum* Mill. (Jain 1995), *Glycyrrhiza glabra* L. (Jain 1995), *Albizia lebbek* (L.) Benth. (Roychowdhury 2008), *Datura fastuosa* L. (Biswas *et al.* 2009), *Ocimum tenuiflorum* L. (Jain 1995), (Roychowdhury 2008), *Phyllanthus emblica* L., *Piper longum* L. (Jain 1995, Biswas *et al.* 2009), *Pergularia daemia* (Forssk.) Chiov. (Jain 1995), *Andrographis paniculata* (Burm.f.) Nees, *Catharanthus roseus* (L.) G.Don, *Centella asiatica* (L.) Urb., *Curcuma longa* L., *Abrus precatorius* L., *Holarrhena pubescens* Wall., *Euphorbia hirta* L. (Jain 1995), *Peganum harmala* L. (Jain 1995), *Acalypha indica* L., *Ephedra gerardiana* Wall. ex Stapf, *Hygrophila auriculata* (Schumach.) Heine, *Madhuca longifolia* (J.König ex L.) J.F.Macbr. (Jain 1995), *Saussurea costus* (Falc.) Lipsch. (Jain 1995), *Syzygium cumini* (L.) Skeels (Jain 1995), *Zingiber officinale* Roscoe (Biswas *et al.* 2009) *Tylophora indica* (Burm. f.) Merr., *Drimia maritima* (L.) Stearn, *Terminalia chebula* Retz., *Prunus serotina* Ehrh., *Eucalyptus globulus* Labill., *Myroxylon balsamum* (L.) Harms, *Emblica officinalis* Gaertn., *Plectranthus amboinicus* (Lour.) Spreng. (Sunilchandra *et al.* 2008) *etc.*

Plants with purgative and anti-flatulent property:

Senna alexandrina Mill., *Cassia fistula* L. (Jain 1995), *Mentha arvensis* L. *Abrus precatorius* L. (Jain 1995), *Piper longum* L. (Jain 1995, Sunilchandra *et al.* 2008), *Ricinus communis* L., *Operculina turpethum* (L.) Silva Manso (Biswas *et al.* 2009), *Aegle marmelos*

(L.) Corrêa., *Andrographis paniculata* (Burm.f.) Nees, *Cheilocostus speciosus* (J.König) C.Specht (Jain 1995), *Terminalia chebula* Retz., *Terminalia belerica* Roxb. (Biswas *et al.* 2009), *Plantago orbignyana* Steinh. ex Decne. *Cinnamomum verum* J.Presl, *Elettaria cardamomum* (L.) Maton, *Kavalama urens* (Roxb.) Raf., *Coriandrum sativum* L., *Anethum sowa* Roxb. ex Fleming, *Nardostachys jatamansi* (D. Don) DC., *Myristica fragrans* Houtt., *Ocimum tenuiflorum* L., *Pinus palustris* Mill., *Ferula foetida* (Bunge) Regel, *Capsicum annum* L., *Zingiber officinale* Roscoe, *Aloe vera* (L.) Burm.f., *Glycyrrhiza glabra* L., *Emblica officinalis* Gaertn., *Sida cordifolia* L., *Putranjiva roxburghii* Wall., *Cuminum cyminum* L., *Plectranthus amboinicus* (Lour.) Spreng., *Ficus hispida* L.f. (Sunilchandra *et al.* 2008).

Plants with nutraceutical Property:

Ipomoea aquatica Forssk., *Phyllanthus emblica* L., *Curcuma longa* L., *Phyllanthus emblica* L. (Jain 1995), *Piper longum* L. (Jain 1995), *Daucus carota* L., (www.healthfromnature.net), *Triticum aestivum* L. (Sunilchandra *et al.* 2008) *etc.*

Plants with antiseptic property:

Andrographis paniculata (Burm.f.) Nees (Jain 1995), *Aloe vera* (L.) Burm.f., *Azadirachta indica* A.Juss., *Madhuca longifolia* (J.König ex L.) J.F.Macbr., *Mentha arvensis* L. (Jain 1995), *Hydnocarpus kurzii* (King) Warb. (Jain 1995), *Coscinium fenestratum* (Goetgh.) Colebr., *Hemidesmus indicus* (L.) R. Br. ex Schult. (Jain 1995), *Ficus religiosa* L., *Cassia fistula* L., *Schleichera oleosa* (Lour.) Merr., *Glycyrrhiza glabra* L. (Jain 1995), *Catharanthus roseus* (L.)

G. Don, *Centella asiatica* (L.) Urb., *Curcuma longa* L., *Ocimum tenuiflorum* L. (Jain 1995), *Eclipta prostrata* (L.) L., *Aegle marmelos* (L.) Corrêa (Jain 1995), *Cassia fistula* L., *Lawsonia inermis* L., *Withania somnifera* (L.) Dunal, *Solanum virginianum* L. (Jain 1995), *Piper longum* L., (Jain 1995, Sunilchandra *et al.* 2008), *Peganum harmala* L. (Jain 1995), *Cullen corylifolium* (L.) Medik. (Jain 1995), *Saussurea costus* (Falc.) Lipsch. (Jain 1995), *Allium sativum* L., *Cymbopogon flexuosus* (Nees ex Steud.) W. Watson, *Gardenia resinifera* Roth, *Emblia officinalis* Gaertn., *Senna alata* (L.) Roxb., *Woodfordia fruticosa* (L.) Kurz, *Asparagus racemosus* Willd., *Cuminum cyminum* L., *Plectranthus amboinicus* (Lour.) Spreng. (Sunilchandra *et al.* 2008) etc.

Plants with anti-dermatitis and skin disease curing effect:

Hemidesmus indicus (L.) R. Br. ex Schult (Jain 1995), *Andrographis paniculata* (Burm.f.) Nees (Jain 1995), *Azadirachta indica* A. Juss. (Jain 1995), *Curcuma longa* L., *Phyllanthus amarus* Schumach. & Thonn., *Coccinia grandis* (L.) Voigt, *Stevia rebaudiana* (Bertoni) Bertoni, *Withania somnifera* (L.) Dunal, *Butea monosperma* (Lam.) Taub. (Jain 1995, Biswas *et al.* 2009), *Datura metel* L., *Ocimum tenuiflorum* L. (Jain 1995), *Dillenia indica* L., *Eclipta prostrata* (L.) L., *Ficus racemosa* L., *Embelia ribes* Burm.f., *Acacia nilotica* (L.) Delile, *Adhatoda vasica* Nees, *Sida cordifolia* L., *Senna sophera* (L.) Roxb., *Madhuca longifolia* (J. König ex L.) J.F. Macbr. (Jain 1995), *Cullen corylifolium* (L.) Medik., *Pterocarpus marsupium* Roxb. (Jain 1995), *Saussurea costus* (Falc.) Lipsch. (Jain 1995),

Solanum americanum Mill., *Symplocos racemosa* Roxb. (Jain 1995), *Syzygium cumini* (L.) Skeels (Jain 1995), *Antidesma montanum* var. *montanum*, *Aloe vera* (L.) Burm.f., *Drimia maritima* (L.) Stearn, *Saraca indica* L., *Mentha arvensis* L., *Senna alata* (L.) Roxb., *Tectona grandis* L.f., *Leucas aspera* (Willd.) Link, *Plectranthus amboinicus* (Lour.) Spreng., *Aegle marmelos* (L.) Corrêa (Sunilchandra *et al.* 2008), *Vitex negundo* L., *Wedelia chinensis* (Osbeck) Merr. (Biswas *et al.* 2009) etc.

Plants with anti-dysentery and anti enteritic property:

Holarrhina pubescens Wall. ex DC. (Jain 1995), *Cyperus rotundus* L., *Acorus calamus* L., *Centella asiatica* (L.) Urb., *Tylophora indica* (Burm. f.) Merr. (Jain 1995), *Strychnos nuxvomica* L., *Achyranthes aspera* L., *Andrographis paniculata* (Burm.f.) Nees (Jain 1995), *Phyllanthus amarus* Schumach. & Thonn., *Hemidesmus indicus* (L.) R. Br. ex Schult, *Paederia foetida* L., *Rauwolfia serpentina* Baill. (Jain 1995), *Aegle marmelos* (L.) Corrêa (Jain 1995), *Asparagus racemosus* Willd., *Pergularia daemia* (Forssk.) Chiov. (Jain 1995), *Embelia ribes* Burm.f., *Punica granatum* L., *Acacia nilotica* (L.) Delile, *Ficus racemosa* L., *Mimosa pudica* L., *Phyllanthus emblica* L., *Plantago orbignyana* Steinh. ex Decne. (Jain 1995), *Carapichea ipecacuanha* (Brot.) L. Andersson, *Pterocarpus marsupium* Roxb. (Jain 1995), *Saraca asoca* (Roxb.) Willd. (Jain 1995), *Solanum americanum* Mill. (Jain 1995), *Syzygium cumini* (L.) Skeels (Jain 1995), *Tinospora cordifolia* (Willd.) Miers (Jain 1995) etc.

Hematenic and blood parameters influencing Plant:

Hygrophila auriculata (Schumach.) Heine (Gomes et al. 2001), *Salacia chinensis* L. (Sikanwar and Patil 2012), *Aristolochia indica* L. ([http://siddham.in/topic/blood purifier](http://siddham.in/topic/blood_purifier) 2010), *Triticum aestivum* L., *Spinacia oleracea* L., *Beta vulgaris* L. (Bond 2011) etc.

Diuretic and Kidney stone removing plant:

Plectranthus amboinicus (Lour.) Spreng. (Biswas et al. 2009), *Vigna unguiculata* subsp. *unguiculata* (L.) Walp., *Boerhavia diffusa* Lin., *Bryophyllum pinnatum* (Lam.) Oken, *Solanum virginianum* L., *Phyllanthus amarus* Schumach. & Thonn., *Peganum harmala* L. (Jain 1995), *Tribulus terrestris* L. (Sunilchandra et al. 2008, Biswas et al. 2009), *Antidesma montanum* var. *montanum*, *Glycyrrhiza glabra* L., *Anethum sowa* Roxb. ex Fleming, *Putranjiva roxburghii* Wall. (Sunilchandra et al. 2008) etc.

Plants having insect repellent or insecticidal property:

Cymbopogon flexuosus (Nees ex Steud.) W.Watson, *Ocimum tenuiflorum* L., *Pinus palustris* Mill., *Azadirachta indica* A.Juss., *Leucas aspera* (Willd.) Link, *Jatropha curcas* L. (Sunilchandra et al. 2008) etc.

Plants with stomachic effect:

Carapichea ipecacuanha (Brot.) L.Andersson, *Cinnamomum verum* J.Presl, *Hemidesmus indicus* (L.) R. Br. ex Schult (Jain 1995), *Allium sativum* L., *Nardostachys jatamansi* (D. Don) DC., *Cymbopogon flexuosus* (Nees ex Steud.) W.Watson (Sunilchandra et al. 2008). *Piper longum* L.

(Jain 1995, Biswas et al. 2009), *Piper nigrum* L. (Biswas et al. 2009) *Solanum americanum* Mill. (Jain 1995), *Swertia chirata* Buch.-Ham. ex Wall., *Symplocos racemosa* Roxb. (Jain 1995), *Plectranthus amboinicus* (Lour.) Spreng., *Plumbago zeylanica* L. (Biswas et al. 2009) etc.

SELECTION OF MEDICINAL PLANT:

Plants may be selected for cultivation in a farm depending on following criteria :

- i) Selection of plant species will be according to the agro-climatic condition of the area.
- ii) It will be of minimum number.
- iii) It is seen that some plants grow as weeds and some others as naturally growing plants of an area. Selection of such plants will be given preference over exotic plants.
- iv) As different parts of a plant can be used for different purposes, singly or in combination with parts of other plants, availability of such member plants may be performed with planned plantation.
- v) It will be according to the species of animal of the farm, their common ailments in that particular area and their requirements.
- vi) In some cases, a few plant parts may have to be stored for other seasons than season of cultivation and in some cases some plant parts are to be purchased from outside due to requirement of completely separate agro-climatic condition for their cultivation.
- vii) Requirement of cultivation of exotic plant may be unavoidable in some cases. Effort will be given in arrangement of natural cultivation environment for such plants.
- viii) Use of inorganic fertilizer, chemical insecticide etc. may be avoided.

CONCLUSION

Modern allopathic medicines are extensively used in the animal farming which are becoming sources of many serious problems. The plant derived medicines marketed by different pharmaceuticals for this purpose are not always effective in animals, might be due to loss of many active principles during processing and storage. To overcome this, every animal farm may be added with a small medicinal plant garden of selected plants for supply of fresh inputs for better production and prevention and treatment of minor and moderate ailments. Trained personals may be used for mixing of parts of plants and their use. Study for proper validation of the medicinal effect of known, common use as well as non familiar use of plants along with standardization of dose schedule will be determined for that purpose.

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