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Ethnoveterinary plants used against mastitis disease by different tribes of Nimar region Madhya Pradesh

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Abstract
The Nimar region is situated in the southern western part of Madhya Pradesh and covering four districts namely Khargone, Barwani, Khandwa and Burhanpur. The chief tribes of the Nimar regions are Korku, Gond, Nihal, Bhil and Bhilala. Present study deals 19 etnoveterinary plants species belongs to 15 families and 18 genera used against mastitis disease in cattle. These commonly plants are *Allium cepa* L., *Asparagus racemosus* Willd., *Azadirachta indica* A., *Baccharoides anthelmintica* (L.) Moench., *Capparis zeylanica* L., *Coriandrum sativum* L., *Curcuma amada* Roxb., *Curcuma longa* L., *Datura metel* L., *Dioscorea bulbifera* L., *Gymnosporia montana* (Roth), *Indigofera tinctoria* L., *Leonotis nepetifolia* (L.) R. Br. prodr., *Moringa oleifera* Lamk., *Nerium indicum* Mill. Gard., *Nyctanthes arbor-tristis* L., *Salvadora persica* L., *Vitex negundo* L., *Zingiber officinale* Rosc.

Keywords: Mastitis, Korku, Gond, Nihal, Bhil and Bhilala

1. Introduction
Ethnoveterinary (E.V.M.) medicine is a system that is based on folk beliefs, traditional knowledge, skills, methods and practices used for curing diseases and maintaining health of animals. (Mac Corkle Constance) There are local healers who are knowledgeable and experienced in traditional veterinary health care. They use locally available medicinal plants for treatment of animals. These tribals mostly reside in the remote villages where no organized veterinary medical aid is available. The tribal's are basically agriculturist and raised domesticated animals such as oxen, cows, buffaloes for milk and agriculture. Tribals treat their live- stock with herbal medicine on the basis of their empiric knowledge

2. Methodology
An ethnoveterinary survey was conducted in different tribal remote villages of the area during 2012-2016.Information about the plants used in mastitis disease are gathered from the different resource persons including Bhagat, Vaidya who have much knowledge on medicinal plants by interviewing and semi-structured questionnaires were prepared. Information were checked by the other informants also. Plants are collected with the help of local medicine men and identified with the help of flora (Hooker 1872-1897; Hains 1924; Jain and Rao 1977, Ray 1984; Verma, *et al.*, 1993; Mudgal *et al.*, 1997; Singh *et al.*, 2001) [2, 10, 9] and available literature.

3. Observations
1) *Allium cepa* L.
Local name - Kanda, Pyaj.
Family - Amaryllidaceae
Plant part used – Bulb
Ethnoveterinary uses - 200gm bulbs are crushed and mixed with mustard oil applied on udder of cattle.

2) *Asparagus racemosus* Willd**.**
Local name - Shatavari, Sevariya.
Family- Asparagaceae
Plant part used- Roots Ethnoveterinary uses -Root paste mixed with the paste of *Allium cepa* (Onion) and jaggery given orally.

3) *Azadirachta indica* A.
Local name - Neem, Neemdo.
Family- Meliaceae
Plant part used- Leaves
Ethnoveterinary uses- Leaves decoction is applied on udder of cattle.

4) *Baccharoides anthelmintica* (L.) Moench.
Local name - Kala jeera.
Family- Compositae
Plant part used- Seeds
Ethnoveterinary uses - Decoction of seeds and jaggery is given orally to cure all udder disorder.

5) *Capparis zeylanica* L**.**
Local name- Ardanda, Kanthar.
Family- Capparaceae
Plant part used
Ethnoveterinary uses- Plant paste along with chapatti made from flour of *Sorghum vulgare* is given two times a day.

6) *Coriandrum sativum* L**.**
Local name - Dhania.
Family- Apiaceae
Plant part used- Seeds
Ethnoveterinary uses- Seeds powder mixed with chips of soap, given twice a day in mastitis of cows and buffaloes.

7) *Curcuma amada* Roxb**.**
Local name - Amba haldi.
Family- Zingiberaceae
Plant part used- Rhizome.

Ethnoveterinary uses- Paste of rhizome is applied on udder of cattle.

8) *Curcuma longa* L.
Local name - Haldi.
Family- Zingiberaceae
Plant part used- Rhizome.
Ethnoveterinary uses- Rhizome paste is applied on udder in udder infection of cattle.

9) *Datura metel* L.
Local name- Kala dhatura
Family- Solanaceae
Plant part used- Leaves
Ethnoveterinary uses- Warm paste of leaves mixed with *Curcuma longa* is applied on udder to cure mastitis.

10) *Dioscorea bulbifera* L.
Local name- Gathalu, Kanda.
Family- Dioscoreaceae
Plant part used- Tuber.
Ethnoveterinary uses- 25-30 gm of tuber paste is given to cattle once a day.

11) *Gymnosporia montana* (Roth**)** Benth.
Local name- Bekal.
Family- Celastraceae
Plant part used- Leaves
Ethnoveterinary uses-50gm leaves are burnt and ash mixed in mustard oil is applied over udder of cows and buffaloes.

12) *Indigofera tinctoria* L.
Local name- Neel.
Family- Leguminosae
Plant part used- Leaves
Ethnoveterinary uses- Paste of leaves are applied on the swelling of udder.

13) *Leonotis nepetifolia* (L.) R. Br. prodr.
Local name- Gorakhmundi.
Family- Lamiaceae
Plant part used- Bark
Ethnoveterinary uses- Bark paste mixed with ointment and apply on udder of cattle in udder disease.

14) *Moringa oleifera* Lam.
Local name- Surjan, Sahjan.
Family- Moringaceae
Plant part used- Bark
Ethnoveterinary uses- Bark powder mixed with edible oil is applied on udder in mastitis.

15) *Nerium indicum* Mill. Gard.
Local name- Kaner.
Family- Apocynaceae
Plant part used- Roots
Ethnoveterinary uses- Root paste is applied on the swollen portion of the udder of cows and buffaloes against mastitis.

16) *Nyctanthes arbor-tristis* L.
Local name- Harsingar, Sirali
Family- Oleaceae
Plant part used- Leaves
Ethnoveterinary uses- Leaf juice is given orally for 3 days to treat mastitis in cattle.

17) *Salvadora persica* L**.**
Local name- Pilu.
Family- Salvadoraceae
Plant part used-Leaves
Ethnoveterinary uses- Leaf juice is applied locally on udder to cure mastitis.

18) *Vitex negundo* L.
Local name- Nirgundi.
Family- Lamiaceae
Plant part used- Roots
Ethnoveterinary uses- Paste of roots is applied on udder of cattle in mastitis.

19) *Zingiber officinale* Rosc**.**
Local name- Adrak.
Family- Zingiberaceae
Plant part used- Adrak.
Ethnoveterinary uses- Rhizome paste with leaf paste of *Aloe vera* (Guar patha) applied on swelling of udder in cattle

4. Results and Discussion

A total 19 plants species belonging to 18 families and 15 genera were used in treatment of mastitis disease. Mastitis is an acute or chronic inflammation of the mammary gland (udder) affecting the secretory cells and frequently causing the total suppression of milk.

Out of 19 species most of the plant parts are leaves (34%), roots and rhizome (17%), bark and seeds (11%), bulb and tuber (5%) are used. Both oral and dermal are used in the treatment. In many cases not only single plant but plant products are also used to cure mastitis. Study indicates that tribals have sufficient knowledge about the therapeutic uses of plants.

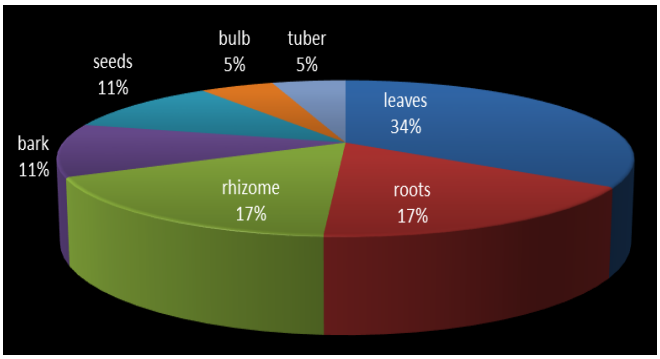

Fig 1: Percentage of plant parts used in the treatment.

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