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TRIDAX PROCUMBENS: A MEDICINAL GIFT OF NATURE.

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Abstract: India is accomplished with variety of large number of medicinal herbs because of environmental condition and seasons for growth of many species of plants. In which the tridax procumbens is a spreading yearly herb found in india. It belongs to the family asteraceae. the native people known it as “Ghamra” and in english it called as “coat buttons”. which is distributed for “Bhringraj” by some of the practitioners of Ayurveda. It has many pharmacological applications such as it acts as antioxidant, antibacterial, antifungal

Antiprotozoan, hypotensive, immunomodulatory, antidiabetic, anti-inflammatory. The juice of leaves possesses antiseptic, insecticidal and parasiticidal properties. It also acts against gram positive and gram negative bacteria. This study could be helpful for recognition and preparation of a clear profile of the plant which may open new approach in the medical field for the treatment of various diseases.

Keyword: Tridax procumbens, plant extract, Medicinal herbs.

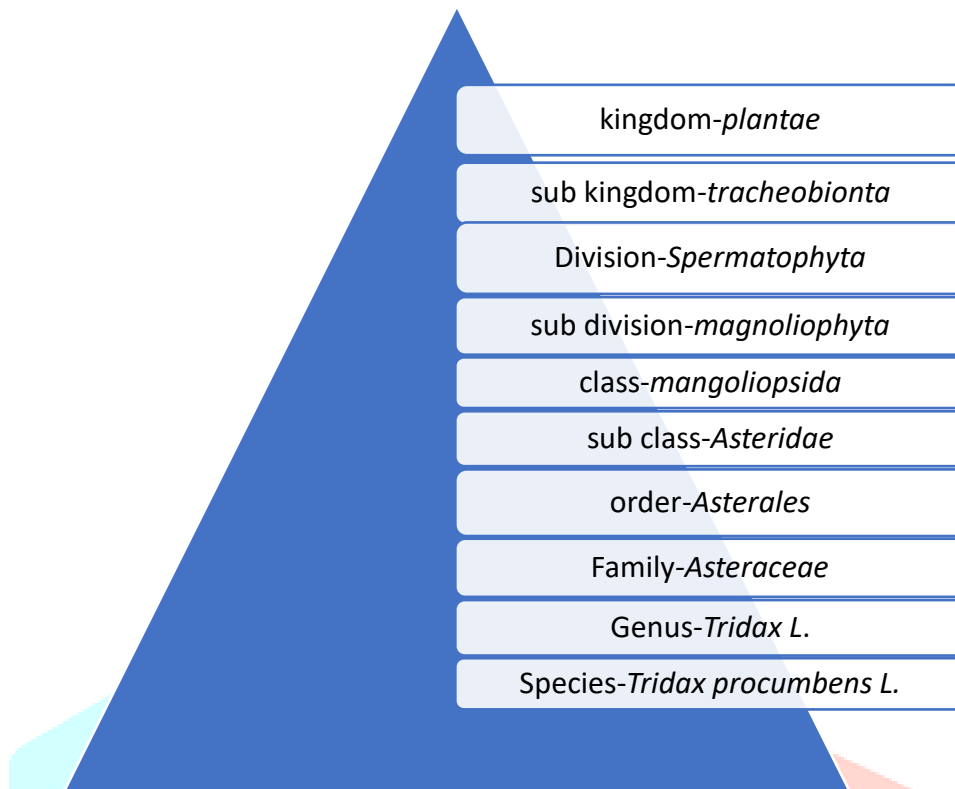
Introduction: In the world India is one of the country which is well known for its flora and fauna of good therapeutic prospects. India is a biggest source of different medicinal plants which are the vital part of people healthy life. India has the incredible history of alternative medicine. In which many of the people use a large number of the plants for the therapy are known as valuable medicinal plants [2]. Cannabis are not really “undesired” mostly in terms of traditional herbal medicines. The “naturally growing plants” are generally known as a group of very vigorous, toxic, competitive, and irritating plants [3].

Tridax procumbens linn frequently called as coat buttons. They belong to the family of asteraceae [4]. And it is often known as “Ghamra” [5]. They should be partly horizontal, yearly or everlasting and herbaceous climbing weed with short hairy, blade-like leaves, which have yellow corolla and elongated stem [4]. This herb is also found in roadsides, disposal area, ditch, subway, riverbanks, grassland and wild [5]. This herbal plant is most used as a medicine for liver disorders. It also shows some pharmacological activities such as antibacterial, antifungal, antiprotozoan, hypotensive, immunomodulatory, antidiabetic, anti-inflammatory, antioxidant and marked sedative action on respiration [3]. The various parts of the plants were reported to have phytochemical compounds like carotenoids, alkaloids, flavonoids, saponins, fumaric acid, and tannins. Coat buttons are also used for the treatment of wound healing, diarrhea, seizure, dysentery, malaria, stomach pain, hypertension. It is also used as insecticidal, anti-septic, parasiticidal and which mitigate the liver injury caused by hepatotoxic agents. And used for removal of toxic chromium from industrial drain water [4].

Local name around the world:

English coat buttons	Telugu Gaddichemanthi	Sanskrit Jayantiveda	Marathi Dagadipala
French Herbecaille	Spanish CadilpChisaca	Tamil Thatapoodu	Malayalam chiravanak
	Hindi Ghamra	Chinese Kotobukigiku	

Fig 1 : local names around the world. [10]

Taxonomy:**Fig 2: Taxonomy of tridax procumbens[10].****Morphology of tridax procumbens:**

Appearance-*Tridax procumbens* is a perennial herb. stem which can reach from to 8-30 inches (20-75 cm) long[10].

Flowers-*Tridax procumbens* flowers have white sparkle and yellow round flowers. Flowering occurs in spring. The plant flowers are looking like daisy. The flower is tubular, yellow flowers with three-toothed ray florets. Inflorescence is capitulum... Achene's black narrowly obconical, 2.0-2.5 mm long with feathery[10].

**Fig 3: flower of T. Procumbens.**

pappus. Flowering- Fruiting throughout the year[10].

Seeds-*Tridax procumbens* seed germinate at higher temperature .This is very sensitive to salt and water stress the chromosome number are 36 (diploid) and 18 (haploid) in gametes. The production is through spreading steam and seed production[10].

**Fig no 4:Seeds[10].**

calyx-It is represented by scales or reduced to pappus[10].

Leaves-Leaves are asymmetrical toothed and generally arrow head shaped. They are simple, oval, opposite, stipulate, and pointed.and they are 3-7 cm. Wedge shaped base leaf, petiole appear shortly, hairy on both surfaces[10].



Fig no.5: leaves of T.Procumbens

Stem and root- Stems are cylindrical, aristate, covered with multi-cellular hairs of mm; tuberculous at the base root is a strong taproot system. The stem is ascending, branched, rarely hairy, rooting at nodes[10].



Fig.6: Stem[10].



Fig 7: Root

Flowers - The plant flowers are looking like blemish. The flower is tube-shaped, yellow flowers with three- toothed ray florets. Inflorescence is capitulum. It has two types of flowers:1. ray florets and2. disc florets with basal palcentation. consistently the flowers are 3 lobed with long, pedicle heads. Achenes black narrowly obconical, 2.0-2.5 mm long with feathery pappus[10].

Flowering- Fruiting throughout the year Genetics-The chromosome numbers of Tridaxprocumbens has been registered as $2n-36$ [10].

Microscopic study:

1)Leaf:

- Transverse section (T.S.) of leaf is dorsiventral, epidermis single layered on both the surfaces and covered with thick cuticle. T.S. passing through the mid rib region shows small depression on ventral side and moderately protuberated on dorsal side[11].
- Trichomes were like a cover which are simple, multi-cellular(3-6 celled) and more in number on posterior side. The basal cells of the trichomes are swollen and trichomes look like claw.
- Leaves are stipulate, simple, opposite, unimaired, hairy, rare penniform, and short-petioled. Lanceolate-ovate leaves have an acute apex and a wedge-shaped base[12].

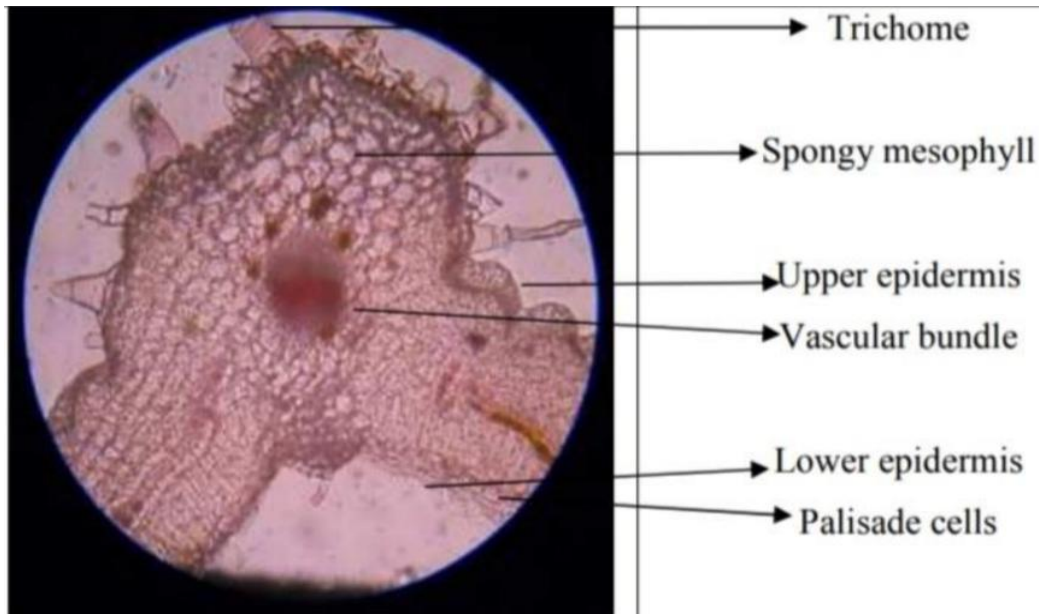


Fig.8:leaf[8].

2) Flower:

- Flowers of *tridax procumbens* are tiny, tubular, and hairy in a whitish-yellow colour.
- Flowers are of two type, disc flowers, the corolla narrow-campanulate, 8 mm long, bright yellow and hairy at the top, with the spreading pappus of plumose hairs.
- Ray flowers 5 or 6, female, with small corolla tube and brown ligulate limb, white or pale yellow[8].

3) Stem:

- The epidermis was single layered, thick walled, narrow and small, and was surrounded by trichomes .
- Cork cells consisted of 2-4 layers, vascular bundles were surrounded by polygonal lignified parenchymatous cells, above the cambium, many patches of small group of sieve tissue were embedded in parenchymatous cells .
- The vascular bundles were conjoint, collateral, close and arranged in a ring form. The xylem consisted of protoxylem, xylem vessels, tracheids, and xylem fibre.
- longitudinal section of stem middle layer consisted of 4-5 layers of rectangular parenchymatous cells[13].

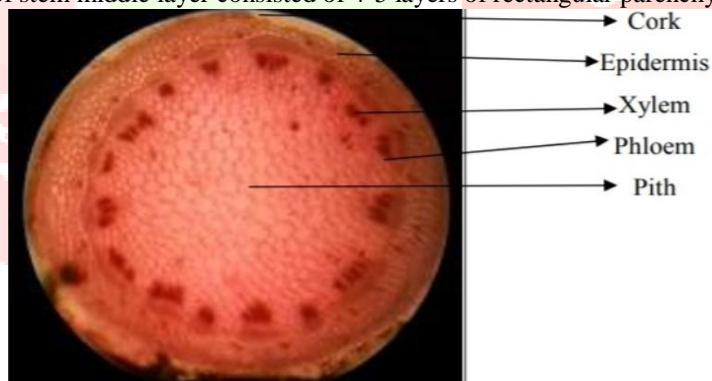


Fig 9: stem[8].

4) Root:

- Dicot type of root is present in *Tridaxprocumbens*, and it consisted of 2-3 layered cells cork, 8-12 layered cells epidermis, xylem, phloem, medullary rays[12,13].

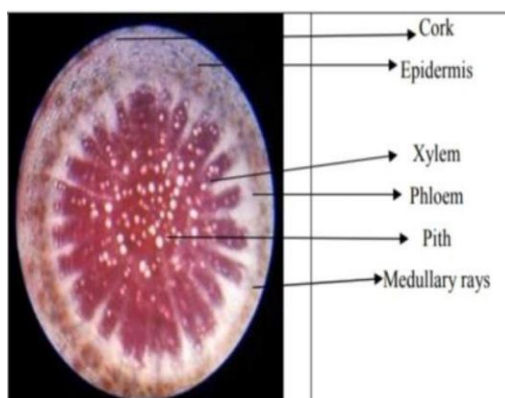


Fig 10: Root[8].

5) Petiole:

- The petiole has Kidney shaped towards the distal end and curve towards the laminal side.
- Single layered epidermis covered with cuticle and intersperse by simple, multicellular, 3- 5 celled trichomes. Hypodermis 1- 2 celled collen-chymatous.
- Ground parenchyma tissue; vascular bundles 5, the size of the vascular bundles varying from centre to margin i.e. large too small. These are centripetal i.e. xylem surrounded by the phloem[8,13].

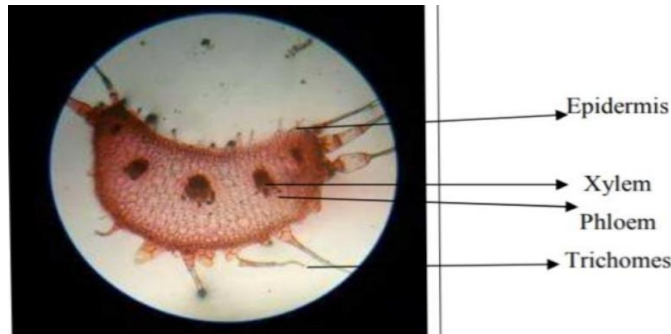


Fig 11:Petiole[8].

6) Stomata of leaves:

- Stomata may occur in the epidermis particularly in the leaves.
- Stoma consists of a pair of identical cells called guard cells and a center pore through which gaseous exchange takes place.
- Stomata are surrounded by the epidermal cells. The anomocytic type of stomata are present in both lower and upper surface of the leaves[14]

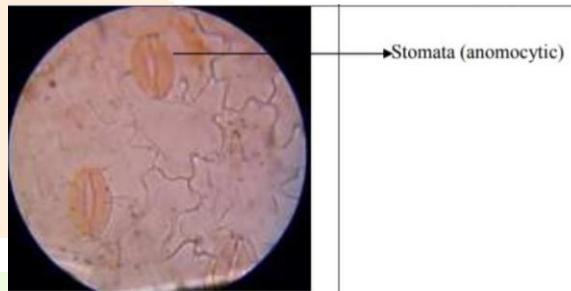
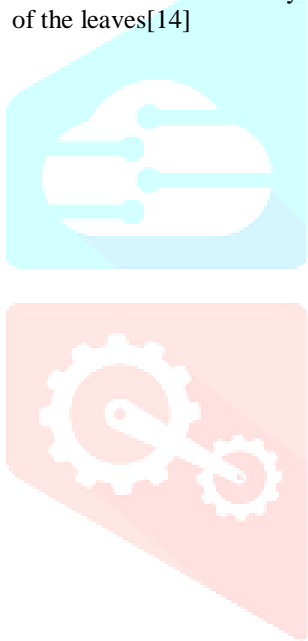


Fig.12: stomata of lower surface of leaves[8].

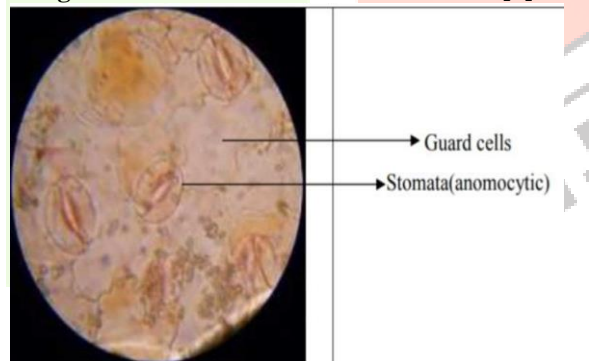
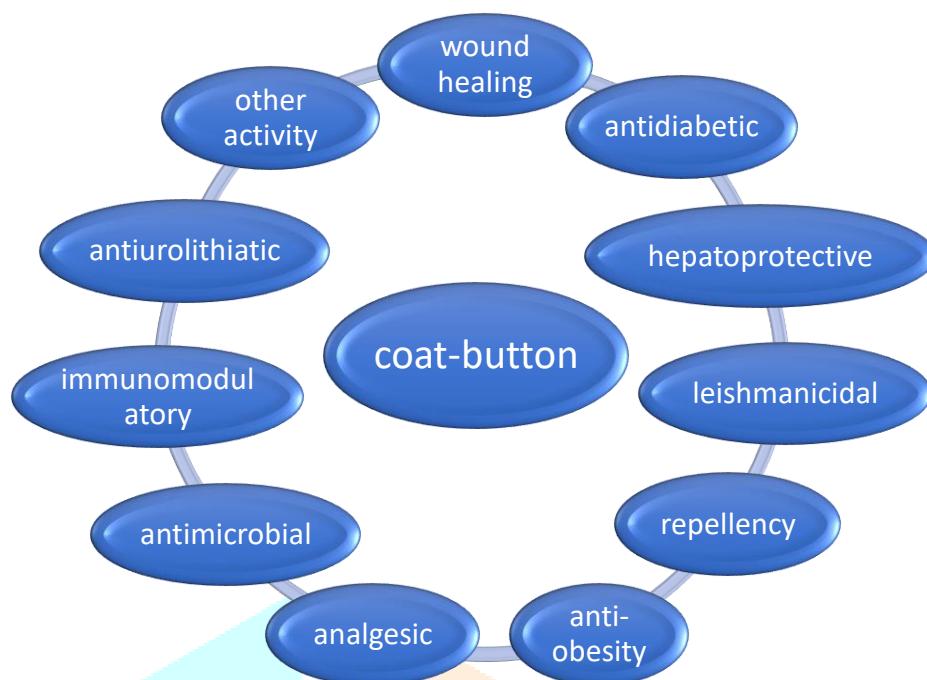


Fig 13: stomata of upper surface of leaves[8].

Pharmacological action:**Fig 14:Pharmacological action.****1)wound healing activities:**

- ❖ Leaf juice of *Tridax Procumben* L. Was shown to depress lesion contraction in experimental animals. The process of wound healing are a complex interactions between epidermal and dermal cell .
- ❖ The aq. extract of whole part of plant *Tridax procumbens* L. has ability to set normal wound healing in experimental animals (rats)[15].

2).Anti diabetic activities:

- ❖ Madhumeha is another name of diabetes in which a patient passed sweet urine and exhibits sweetness all over the body in form of sugar .i.e., in sweat, mucus.
- ❖ Urine, blood .from ancient time various other Herbal medicine used for lowering blood glucose levels as such or in juices form[16].
- ❖ Aq. and alcoholic extract of leave of *Tridax Procumben* leave (200mg/kg) orally administered for 7days produced a significant reduced in the blood glucose level. *Tridax Procumben* can impart not only by hypoglycemic effect but also by improving lipid metabolism, antioxidant properties and capillary action in diabetics[17].

3).Hepato protective activities:

- ❖ The hepato protective activity of aerial parts of *Tridax Procumben* shows significant protection in alleviation of D-Galactosamine /Lipopolysaccharide (D-GalN/LPS)induced hepatocellular injury.
- ❖ D-(Galan/LPS)have been proposed to be hepatotoxic due to its ability to destruct liver cells[16].

4).Anti-inflammatory and analgesic activities:

- ❖ The extract of *Tridax Procumben* Linn. was additionally reported for it's anti-inflammatory properties when DPPD(2,2-diphenyl-1-picrylhydrazyl hydrate)assay was performed[15].

5).repellency activities:

- ❖ The essential oil of leaves of *Tridax Procumben* Linn. were extracted by steam distillation and they were studies for its topical repellency effect against material parasite *Anopheles Stephensi* in mosquito cages.
- ❖ All essential oil were experimental at three different concentrations (2,4,6%)of it.
- ❖ *Tridax procumbens* are promising as repellent at 6% concentration against *Anopheles Stephensi*[15].

6).Anti-obesity activities:

- ❖ *Tridax procumbens* showed decrease in total cholesterol, triglycerides ,protein, free fatty acids.
- ❖ *TridaxProcumben* was found to process of anti obesity activity[16].

7).leishmanicidal activities:

- ❖ In vitro activity of methanolic extract of *Tridax Procumben* inhibited promastigotes growth of *leishmania Mexicana* which is a causative agent of cutaneous leishmaniadisease[18].

8).Antimicrobial activities:

- ❖ Whole plant of *Tridax Procumbens* has reported for its antimicrobial activity on various species of bacteria
- ❖ Fresh plant juice is applied twice a day for 3-4 days to cure cuts and wounds. The extract of entire plant of *Tridax procumbens* showed antibacterial activity only against *Pseudomonas aeruginosa* (two gram negative) [16].

9).Immuno modulatory activities:

- ❖ Ethanol insoluble of aq. extract *Tridax procumbens* has been reported for immune modulatory activities which has ability to inhibit the proliferation of these microorganisms [15].

10). Anti urolithiatic activities:

- ❖ Renal calculi formation is one of the common urological disorders. Major factor of Hyperoxaluria and Hypercalciuria for renal stone formulation. Ethanolic extract of *Tridax Procumbens* was evaluated against 0.75% v/v ethylene glycol and 2% w/v ammonium chloride induced calcium oxalate in the male albino rats.
- ❖ Treatment with extract reduced calculogenesis. Renal deposition of calcium and oxalate thus resultant lipid peroxidation indicating the antiurolithiatic and antioxidant effect.
- ❖ Thus, *Tridax procumbens* has proven its effect is useful in treatment of renal stone disease [18].

11). Other activities:

- ❖ Leaves extract of *Tridax Procumbens* Linn. were found to be good hair growth promoters and it has also reported for preventing effect on falling of hair.
- ❖ *Tridax procumbens* plant was also used for dysentery, diarrhea and bronchial catarrh in the west Africa sub region and tropical zone of the world.
- ❖ This plant was also used as an effective bio adsorbent for removal of highly toxic ions of Cr from industrial waste water [15].

Conclusion:

Tridax Procumbens Linn has huge potential for botanical, phytochemical, nutritional and pharmacological properties. From the above review study and description, it is observed that the plant has been broadly used in the ancient system of medicine for various diseases. And it has various important phytopharmacological activities, as it is discussed in the review article. There is wide scope for research in order to more pharmacological activities of this plant.

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