

Summary



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## SUMMARY

The herbaceous plant *Tribulus terrestris* Linn of family zygophyllaceae commonly known as Gokhru, are of great medicinal value. It is a procumbant trailer very often occurs in sandy soil of tropical and subtropical regions upto on altitude of 11000 feet. The medicinal value of this plant is due to presence of alkaloids, carbon compounds, glycosides, essential oils, resins, fatty oils, aminoacids, tannins and gum etc. The active principles of plants are of great medicinal importance for curing different diseases in animals as well in human beings. The variation in quantity and quality of phytochemicals produced in plant components depends of the variation in soil factors and chimatic conditions. The present studies was carried out 2000 for to 2002 to acheive the following objective.

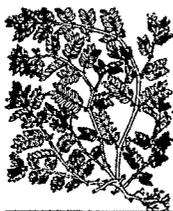
1. To study the distribution, Habit and Habitate, morphological and floral characters of *T.terrestris* Linn.
2. Pointed out the medicinal characters of the plant *T.terrestris* Linn.
3. Analysis of steroidal sapogenins content.
4. Isolation of steroidal sapogenins from fruits.



5. Isolation of steroidal glycoside from *T. terrestris* Linn.
6. Analysis of free amino acids content from different components of the plants.
7. To study the physico-chemical charactes of different soil samples.
8. Analysis of Ascarbic Acid and water content.
9. Mineral content analysis in components of plants.
10. Statistical analysis.

To achive these aforesaid objectives the research work has been carried out from 2000 to 2002 and summary of the results of detailed physico-chemical studies of *T. terrestris* Linn plants growing in veyring habitats of Jaunpur have been pointed out as follows.

1. The angiospermic plant *T. terrestris* Linn of family zygophyllaceae is procombant prostrate wild annual creeper, creepin up to 90 cm length.
2. The twenty species of genus Tribulus grown in sandy land and clayee fallow land soil.
3. Leaves are pinnately compound, opposite abruptly pinnate, one of each pair usually smaller than the other stipulate lanceolate hairy leaflet.



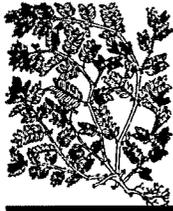
4. Roots are slender fibrous 10-12cm long cylindrical of a light brown colour, the odour is faintly aromatic and taste is sweetish and astringent.
5. Fruit globose consisting of usually cocci, each with two pairs of hard sharp spines, one pair longer than the other.
6. Leaves are diuretic tonic, increase the menstrual flow, cure gonorrhoea. Root is a good stomachic and appetiser, diuretic and carminative. Fruits are acidic with a disagreeable taste, diuretic removes gravel from the urine and stone in the bladder.
7. Flowers are axillary, raised on short peduncle, solitary pedicels 1.2 to 2.0 cm long, slender and hairy flowers are compound of 5 broad obtuse sepals 6 mm long, lanceolate, acute hairy yellow petals 1 cm long.
8. The diuretic property of the drug (obtained from *T. terrestris*) is due to the presence of large quantities of nitrates as well as essential oil which occurs in the seeds.
9. The six [Terrestrosin F (1), Terrestrosin G (2), Terrestrosin H (3), Terrestrosin I (4), Terrestrosin J (5) and Terrestrosin K (9)] new furostanol saponins as constituents of fruits of *T. terrestris* Linn are reported, i.e. 26-O- $\beta$ -D, glucopyranosyl (25 R) furostance 2a, 2b,



22a, 26 tetrol- 3-0- $\beta$ -D glucopyranosyl (1-4) -  $\beta$ -D- galatophyranoside, 26-0- $\beta$ -D- glucopyranosyl (25 R, S) 5 $\alpha$  furostane- 29, 3 $\beta$ , 29, 26 tetrol-3-0- $\beta$ -D galactopyranosyl (1-2)- $\beta$ -D glucopyranosyl (1-A) -  $\beta$ -D glucopyranosyl (25-RS), 26-O- $\beta$ -D- glucopyranosyl (25 RS)- furost - 5- ene-3 $\beta$ -, 22 $\alpha$ , 2.6 triol-3-0- $\beta$ -D- galactopyranosyl (1-2)-  $\beta$ -D- glucopyranosyl (1-4)- $\beta$ -D- galactopyranoside, 26-O- $\beta$ -D- glucopyranosyl (25 RS) - 5 $\alpha$ - furost - 20(22)- en - 12-one 3 $\beta$ , 26 diol-3-O- $\beta$ -D-galactopyranoside.

10. The ethanolic extraction of *T. terrestris* Linn and fractionated by silica-gel chromatography to afford compounds 1-4 were identified as tigogenin, lecognin, gitogenin and lecogenin.
11. An ethanolic extract of the aerial parts of the plant, subjected to repeated chromatographic purifications, gave three steroidal glycosides 1-3.

Saponin 1, 2 and 3 exhibited molecular ion peak at  $m/z$  1249  $[M+K]^+$ , 1233  $[M+Na]^+$ , 1210 ( $m^+$ );  $m/z$  1267  $[M+K]^+$ , 1251  $[M+Na]$  and  $m/z$  777  $[M+Na]^+$  754  $[M^+]$  in the FAB mass spectrum respectively.



12. Microchromatographic analysis of root nodules of *T. terrestris* shows twenty two free amino acids including glutamine, asparagine, cystine, Tryptophanes, glycine, serine, proline, alanine, Valine, methionine, leucine, Isoleucine, Tyrosine, Phenylalanine and histidine etc.
13. Bulk density of soil ranged from a maximum values  $1.65 \text{ gm}^{-3}$  at control site to a minimum value  $1.24 \text{ gm}^{-3}$  at the affected site.
14. Soil porosity fluctuates between a minimum value 32.56% at the affected site to a maximum values 61.54% at control site.
15. The water holding capacity (WHC) of soil have been observed to ranged between highest value of 42.47% to a lowert value 28.58% at control and affected sites.
16. The hydrogen ion concentration (pH) ranged from a minimum 5.2 at affected site to amaximum 7.6 at control.
17. The electrical conductance (EC) values ranged from a maximum  $0.78 \text{ mm/hr}$  at control site to  $0.42 \text{ mm/hr}$  at affected site.
18. The maximum percentage of organic carbon  $1.48 \pm 0.063\%$  was observed in soil samples collected from affected sites. However, the minimum organic content was recorded  $1.15 \pm 0.003$  for the the soil samples from the control site.



19. Total nitrogen content fluctuates from a minimum value  $0.38 \pm 0.05\%$  to maximum value  $0.008 \pm 0.006\%$  at the affected and control site.
20. The concentration of available phosphorus in soil samples of the various study site ranged between  $0.0072 - 0.0042 \text{ mgg}^{-1}$ .
21. Sulphate content ranged from maximum value of  $0.071 \text{ mg g}^{-1}$  at affected site to a minimum values of  $0.031$  at control site.
22. The maximum content of  $\text{Ca}^{++}$   $0.086\%$  and  $\text{K}^{+}$   $0.088\%$  have been recorded at the affected site while lowest  $0.063\%$  and  $0.0677$  at te control site.

