



E-ISSN: 2321-2187

P-ISSN: 2394-0514

www.florajournal.com

IJHM 2024; 12(1): 16-20

Received: 11-10-2023

Accepted: 22-11-2023

R Bhuvaneswari

Department of Botany,
Thanthai Hans Roever College
(Autonomous), Perambalur,
Tamil Nadu, India

R Ramanathan

Research, Department of
Botany, Government Arts
College, Ariyalur, Tamil Nadu,
India

R Dhandapani

Research, Department of
Botany, Government Arts
College, Ariyalur, Tamil Nadu,
India

P Divakar

Research, Department of
Botany, Arignar Anna
Government Arts College,
Namakkal, Tamil Nadu, India

Corresponding Author:**R Ramanathan**

Research, Department of
Botany, Government Arts
College, Ariyalur, Tamil Nadu,
India

An investigation of ethno-veterinary practices of *Cissus quadrangularis* L. used in cattle for diarrhoea disease

R Bhuvaneswari, R Ramanathan, R Dhandapani and P Divakar

DOI: <https://doi.org/10.22271/flora.2024.v12.i1a.916>

Abstract

The ethno-veterinary practices of *Cissus quadrangularis* L. is used to cattle's against for diarrhoea disease. We find out that the ethno-veterinary medicinal plant have a unique role to cattle's for cure diarrhoea disease. The ethno-veterinarian medicines are used to relieved diarrhoea disease to cattle. *C. quadrangularis* was used for the treatment to cattle for diarrhoea disease by "Mattu vaihiyar". Aqueous extract of *C. quadrangularis* is the oral administration given to the cattle using by Thirukkuvalai. After treatment of *C. quadrangularis* was completely cured to cow and goat for diarrhoea disease. The study plant could be selected for screening to identify active Phyto-chemical compounds and develop new drugs. Further researcher on *C. quadrangularis* can help in the development of effective new drugs for cattle forming to diarrhoea disease.

Keywords: Cattle's, *Cissus quadrangularis*, diarrhoea, ethno-veterinary, Thirukkuvalai, mattu vaihiyar

1. Introduction

Ethno-veterinary practices are the community based indigenous knowledge and the use of medicinal plants and procedures applied for their preparation was transmitted from generation to generation. It has been reported that as many as 70% (90% in some communities) of the world population continue to rely mainly on their own localized ethno medicine for personal as well as veterinary healthcare. Ethno-veterinary medicine was practiced as early as 1800 B.C at the time of King Hamurabi of Babylon who formulated laws on veterinary fees and charged for treating cattle and donkeys^[1]. The traditional drugs for animals based on both plant and animal products have received less attention. Ethno-veterinary medicine often provides cheaper options compared to western drugs and the products are locally available and more easily accessible. In the face of these and other related factors there is increasing interest in the field of ethno veterinary research development^[2-3]. An earlier study done by Bhatt *et al.*,^[4] recorded various ethno veterinary plants used by the tribal's of Gujarat, again reported so many plants in India for the treatment of various diseases in livestock^[5-8]. Ethno-veterinary medicine deals with people's knowledge, skills, methods, practices, and beliefs about the care of their animals^[9]. In recent years, interests in ethno-veterinary investigations have been increased enormously on national and international level. Medicinal plants should be screened scientifically in order to investigate newer sources of ethno-veterinary drugs and medicines. Fortunately, since last three to four decades considerable progress has been made in the ethno-veterinary sciences due to recent ethnobotanical and ethnomedicinal explorations^[10].

The present study was aimed at collections of medicinal plants, preparation of drugs and imformation of traditional ethno-veterinary practice in Namakkal district, Tamil Nadu, India. This study area has no scientific report has been done in indigenous knowledge of veterinary remedies to treat cattle for diarrhoea disease. *Cissus quadrangularis* L. has not been explored on ethno-veterinary practice for cattle disease. Therefore, the present work was carried out as the first attempted to explore of *C. quadrangularis* of ethno-veterinary practice and to record the traditional ethno-veterinary knowledge in cattle for diarrhoea disease.

2. Materials and Methods

2.1 Materials: *Cissus quadrangularis* L. is the materials of the present investigation. Fresh leaves and stem of *C. quadrangularis* was collected from Kattukottai village, Rasipuram, Tamil Nadu, India.

2.2 Methods

2.2.1 Filed visit: Filed visit were undertaken to different location of villages. Information about the plant possessing anti - diarrhoea disease activities were collected from tribals and native medicine men.

2.2.2 Study area

Namakkal district is an administrative district in the state of Tamil Nadu, India. The district was bifurcated from Salem district with Namakkal town as headquarters on 25-07-1996 and started to function independently from 01-01-1997. The district has 6 taluks (subdivisions); Tiruchengode, Namakkal, Rasipuram, Velur, Kolli Hills, Sendamangalam (in descending order of population) and has two revenue divisions; Namakkal and Tiruchengode. The district is bounded by Salem on the north, Karur on the south, Trichy and Salem on the east and Erode on the West. The geographical area of the district is 3363.35 Kms which lies between 11°13'46.5312"N latitude and 78°10'16.1688" E longitude. For administrative purposes, the district has been divided into 2 revenue divisions, 4 Taluks, 30 Revenue firkas and 454 revenue villages (Including group Villages). For local arrangements, the district has been divided into 5 municipalities, 15 panchayats unions, 19 town panchayats and 331 village panchayats. Total area of Namakkal is 1249.72 sq. Km with population density of 433 per sq. Km. Out of total population, 5.18% Scheduled Tribe of total population in Namakkal Districts. (Fig1).

2.2.3 Plant identification

The study plants were identified with the help of available India literature and the identified was verified with the help of Rapinet Herbarium, St. Joseph's College, Tiruchirapalli, Tamil Nadu, India.

2.2.4 Botanical studies

The botanical studies were collected from available India literatures ^[11].

2.2.5 Ecological studies

The ecological studies of the plants were collected from some India literatures ^[12].

2.2.6 Phytochemical studies and Medicinal uses

The phytochemical constituents and medicinal uses of the study plant was collected from available India literatures ^[11-12].

2.2.7 Herbarium specimen

Herbarium specimen was deposited in the Rapinet Herbarium, St. Joseph's College, Tiruchirapalli, Tamil Nadu, India. The plant herbarium number was obtained (*Cissus quadrangularis* L. - RHT 30299).

2.2.8 Preparation of powder of *C. quadrangularis* L.

The collected leaves of *C. quadrangularis* was shade dried at room temperature for 3 days and sundry for 3 days and then milled in to coarse powder by a mechanical grinder ^[13].

2.2.9 Ethno-veterinary treatment for diarrhoea disease

This method was used by Toyang *et al.*, ^[14]. Drenching is the oral administration of ethno veterinary drugs in a liquid form 40 gm. powder of *C. quadrangularis* mixed with distilled water. After measuring the aqueous extract of *C. quadrangularis* is given to the cattle's using by

"Thirukkuvalai". This is easily done by raising the "Thirukkuvalai" into the mouth. Inserting two fingers on the other side of the mouth to press the tongue downwards, helps to hold mouth open pore the aqueous extract of *C. quadrangularis* gently at intervals (Fig.2 D).

2.2.10 Photography

Photography was taken for the macroscopic characters and morphometric characters of the plants with the help of Sony cyper shoot camera and colour print outs were made.

3. Results

C. quadrangularis is a fleshy, cactus - like, jointed climber, distributed throughout India, particularly in the hotter Parts; also cultivated in gardens. Stem slender dichotomously branched, sub - angular, glabrous, brown, fleshy, fibrous, with 4 - winged internodes and a leaf - opposed, Persistent tendril at some nodes, aerial roots developing during the rainy season, Leafless when old, 5-15 cm long; Leaves cordate, broadly ovate or reniform, crenate - serrate, sometimes 3 - 7 lobed, glabrous, 2.5 - 7.5 cm × 3 - 9 cm: flowers Small, greenish white, in short umbellate cymes: berries obovoid or globose, succulent, very acrid, peasized, 1 - seeded (Fig- 2. A&B). Analysis of the air-dried plant gave: moisture, 13.1; protein, 12.8; fat and wax, 1.0; fibre, 15.6; carbohydrates, 36.6; mucilage and pectin's, 1.2; and ash 18.2%. The ash contains mostly carbonates, and to a smaller extent phosphates of sodium, potassium, magnesium, and calcium. Presence of potassium tartarate is also reported. The plant is rich in vitamin C. The stem contains two unsymmetric tetracyclic triterpenoids, onocer-7-ene-3 α , 21 β -diol, and onocer-7-ene-3 β , 21 α -diol and two steroidal principles. Presence of β -sitosterol, δ -amyirin and δ -amyrone is also reported. The powdered dry shoots are used in digestive troubles. The juice of the plant is said to be beneficial in scurvy. It is also applied in cases of diarrhoea and epistaxis, and used as alterative. The stem beaten into a paste is given in asthma, and the powdered root is considered to be a specific in the treatment of fractured bones. Fresh shoots are pounded and applied for burns and wounds, and for saddle sores of horses and camels. An infusion of the plant is purgative. The stem and root yield a strong fibre. The ash of the plants is used as a substitute for baking powder.

The present study was designed to document on the traditional knowledge of the plants used by tribes and native medicinal men to treat veterinary diseases of diarrhoea. Ethno-veterinary practices has been studied for diarrhoea in the field area of Kattur and Kattukottai, Muthukalipatty, Chandhra Sekarapuram, Agravaramand Murungapatty village at Rasipuram Taluk of Namakkal District. Aqueous extract of *C. quadrangularis* was treated to cattle for anti - diarrhoea disease. During the study was observed that older farmer (50-75 years) is knowledgeable about ethnoveterinary medicine.

Aqueous extract of *C. quadrangularis* aerial part of plant was treated to the cow twice days for 3-4 days 40 gm powder mixed with 500 ml of distilled water. After treatment of 4 days, *C. quadrangularis* was completely cured to cow for diarrhoea disease (Fig-2.E). Aqueous extract of *C. quadrangularis* aerial part of plant was treated to the cow twice a days for 3-4 days 40 gm. powder mixed with 500 ml of distilled water. After treatment of 3 days, *C. quadrangularis* was completely cured to cow for diarrhoea disease. Aqueous extract of *C. quadrangularis* aerial part of plant was treated to the goat twice days for 2- 3 days 20 gm. powder mixed with 250ml of distilled water. After treatment of 2 days, *C. quadrangularis* was completely cured to goat for

diarrhoea disease (Table-1); (Fig-2 F).

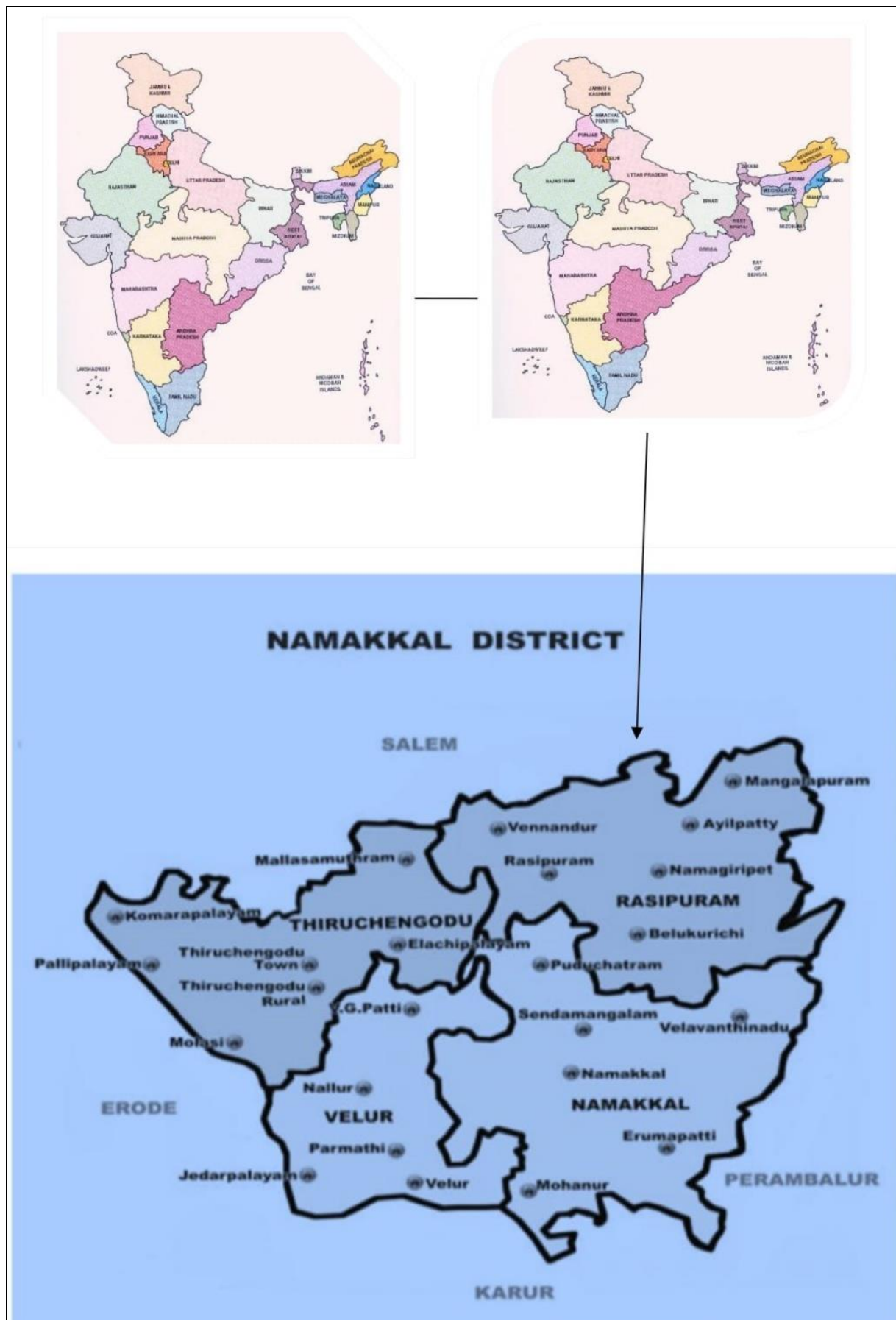


Fig 1: Study area of Namakkal district



Fig 2: Show the a) Habit and Habitat of *Cissus quadrangularis*. b) Close up view of *C. quadrangularis* L. fruit. c) Diarrhoea with cow in Agravaram village at Namakkal district. d) Oral administration of 40 gm powder of aqueous extract of *C. quadrangularis* L. by Kathukkuvalai. e) After 4 days diarrhoea disease cured to cow f) Oral administration of 20 gm powder of aqueous extract of *Cissus quadrangularis* L. for diarrhoea

4. Discussion

The knowledge regarding ethno-veterinary medicine is getting lost due to the advancement of modern medicines by commercial pharmaceuticals and many tribal communities changing their professions because of rapid socioeconomic and cultural changes. But ethno-veterinary medicine is still persistence due to some factors which include high costs,

inaccessibility and other factors linked with the modern veterinary system.

The various plant parts used included leaf, stem, root, bark, seed, fruit and even flower. Leaves constituted major portion of plant part used. Majority of earlier work on ethno-veterinary medicine recorded those leaves were major portion used in various treatments. Plant mostly used for oral

administration the result was corroborated with earlier record by Eswaran *et al.*,^[15]. Traditional medicine is part of the indigenous knowledge systems of people all over the world. Traditional practices, used to keep their animals healthy and productive, and to treat and control diseases, constitute Ethno Veterinary Medicine (EVM)^[16].

The high cost of pharmaceutical products and lack of access to veterinary services are significant reasons for farmers to use non-conventional medicines. Small scale farmers use plants extensively for the treatment of livestock diseases^[17]. Traditional medicine is, in many rural areas of the Namakkal district sometimes the only available alternative to expensive or unavailable modern orthodox health care for the management of both human and animal health.

The farmers in study areas of Kattur and Kattukottai, Muthukalipatty, Chandhra Sekarapuram, Agravarm and Murungapatty to keep several domestic animal species including, in decreasing order of importance cattle, goats, chickens, sheep, dogs and donkeys. Traditional healers were generally not consulted for animal healthcare. Most of the farmers (85%) learnt about traditional treatment from the relatives and other farmers. There was very little reference to ancestral guidance as occurs in traditional human medicine. Farmers were interested in knowing the medicinal used by other and they were all willing to share the information. This is contrary to traditional healers, who tend to keep the knowledge to themselves, as it is source of livelihood.

The effect of aqueous extract of aerial part of *C. quadrangularis* orally treated to 10 cattle for diarrhoea disease. In aqueous extract of *C. quadrangularis* most significant effective against for diarrhoea disease within 3-4 day.

5. Conclusion

The ethno veterinary practices data about the usage of *C. quadrangularis* to treat the diarrhoea disease in cattle's in the present study is a primary and first report. Use of study plant explained by "Mattu vaithiyar" are not yet been explored. But the collection of ethno veterinary data from this study area of Namakkal district can provide a basis for the integration of "Mattu vaithiyar" uses in the alternation veterinary medicine this valuable information of ethno veterinary medicine can utilized future use made by pharmaceutical companies.

6. Acknowledgements

The authors are thankful to informants, traditional medicine men and practitioners who provided the information and sharing their knowledge on ethano-veterinary medicinal plants and species identifications.

7. References

- Zschocke S, Rabe T, Taylor JLS, Jager AK, Van Standen J. Plant's part substitution: A way to conserve endangered medicinal plants. *J Ethnopharmacol.* 2000;71: 28-292.
- Masika PJ, Van Averbekke W, Sonandi A. Use of herbal remedies by small scale farmers to treat livestock disease in central Eastern cape province, South Africa. *J South Africa Vet Assoc.* 2000;71:87-91.
- Khatoon R, Das AK, Singh PK, Dutta BK. Ethno veterinary plants used by Kom tribe of Manipur, India. *Bioresource Trad. Knowl. North East India.* 2013, 303-306.
- Bhatt DC, Matalia KD, Mehta SK. Observation on ethno veterinary herbal practices in Gujarat. *Ethnobot.* 2001;13:91.
- Girach RD, Brahman M, Misra MK. Kolk veterinary herbal medicines of Bhadrak District, Orissa, India. *Ethnobotany.*1998;10:85-88.
- Harsha VH, Shripathi V, Hegde GR. Ethnoveterinary practices in Uttara, Kannada district of Karnataka. *Indian J Trad. Knowl.* 2005;4(3):253-258.
- Yadav D. Ethno-veterinary plants from tribes in habited localities of Ratlam district, Madhya Pradesh, India. *Indian J Trad Knowl.* 2009;33:64-67.
- Rahman CH, Ghosh A, Mandal. Studies on the ethno-veterinary medicinal plants used by the tribes of Birbhum district, West Bengal. *Indian J Trad. Knowl.* 2009;33:333-338.
- McCorkle. An introduction to ethno-veterinary research and development. *J Ethno Vet.* 1986;6(1):129-149.
- Salave AP, Gopal Reddy P, Diwakar PG. Some unreported ethno-botanical uses from Karanjighat areas of Pathardi Tahasil in Ahmednagar district (M.S.) India. *IJABPT.* 2011;2(4):240-245.
- Kirtikar KR, Basu BD. *Indian Medicinal Plants.* (2nd edn.), (Lalit Mohan Basu, Allahabad, India). 1999;3:392-394.
- Nadkarni KM. *Indian Materia Medica.* (3rd edn.) (Popular Prakashan, Bombay); c1976.
- Harbone JB. *Phyto-Chemical Methods,* (Chapman and Hall Ltd. London); c1973. p. 321.
- Toyang NJ, Wanyama J, Nuwanyakpa M, Django S. *Ethno veterinary Medicine, A practical approach to the treatment of cattle diseases in sub- Saharan Africa.* Agrodok 44, Edited by HMertens (Agromisa Foundation and CTA, Wageningen, The Netherlands); c2007.
- Eswaran S, Boomibalagan P, Rathinavel S. Ethno-veterinary medicinal practices of the villagers of Usilampatti Taluk of Madurai district, India. *Int. J Bot.* 2013;9:37-43.
- Mathias-Mundy E, McCorkle CM. *Ethno-veterinary medicine an annotated bibliography.* Centre for Indigenous Knowledge and Agricultural and Rural Development (*CIKARD*). (Ames: Iowa State University, Bibliographies in Technology and Social Change, n.o.6); c1989.
- Van der Merwe D, Swan GE, Botha CJ. Use of ethno-veterinary medicinal plants in cattle by Setswana-Speaking people in the Madikwe area of the North West Province of South Africa. *J South African Veterinary Association.* 2001;72:189-196.