

Studies on Traditional Treatment of Thyroid by the Tribals of Chitrakoot District, Uttar Pradesh

Priyanka Verma¹, Kayanat Jameel²

Department of Botany, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya Chitrakoot, Satna (M.P.), India

Abstract: *Thyroid problems are on rise today. This increase is in part due to the more and more frantic lifestyles people engage in today and it is also because of a lack of suitable nutrients in the soil. Many people are affected by hypothyroidism, which is an under productive thyroid condition and do not even comprehend it. Hyperthyroidism is a condition in which the thyroid is overactive. Medicinal plants are part of social life of tribals and rurals in India. Since ages, tribals in Chitrakoot District have been using medicinal plants for curing various disorders. For them, these herbal remedies are less expensive. It is indeed true that the herbal medicines are harmless, easy to access, eco-friendly and cheaper. In the present communication, we aim to focus upon a practice for curing thyroid problem. Approximately 11 ethnobotanical species of medicinal uses belonging to 10 families were recorded. These plants are enumerated as per Bentham and Hookers classification system each reflecting the information of botanical name, family, local name, parts used and medicinal uses.*

Keywords: Thyroid, Hypothyroidism, Hyperthyroidism, Chitrakoot

1. Introduction

India has a very rich biodiversity, unique physical and ethnic diversity, traditional culture, and much indigenous knowledge or tribal wisdom (Rao 1989, 1994). There are 400 tribal and other ethnic groups in India constitute about 7.5% of India's population. Besides them, forest dwellers and rural people also possess unique knowledge about plants (Jain, 1991). One of the survey conducted by the WHO reports that more than 80% of the world's population still depends upon the traditional medicines for various diseases. In the developed countries 25 percent of the medical drugs are based on plants and their derivatives and the use of medicinal plants is well known among the indigenous people in rural areas of many developing countries (Fabricant and Farnsworth, 2001; Perumalet al. 2008).

The thyroid gland or simply, the thyroid in vertebrate anatomy is one of the largest endocrine glands. The thyroid gland is found in the neck, below the thyroid cartilage (which forms the laryngeal prominence or "Adam's apple"). The thyroid gland controls how quickly the body uses energy, makes proteins, and controls how sensitive the body is to other hormones. It participates in these processes by producing thyroid hormones, the principal ones being triiodothyronine (T3) and thyroxine which can sometimes be referred to as tetraiodothyronine (T4). These hormones regulate the growth and rate of function of many other systems in the body. T3 and T4 are synthesized from iodine and tyrosine. The thyroid also produces calcitonin, which plays a role in calcium homeostasis.

Perusal of literatures on ethnobotanical plants of Chitrakoot region of Madhya Pradesh Sikarwar et al (2008); Tripathi and Sikarwar (2013), revealed that there is no any information recorded on ethno-medicinal plants of Chitrakoot district of Uttar Pradesh to cure Thyroid problem. Therefore, this has been recorded for the first time by the author and described here.

2. Functional disorders

Imbalance in production of thyroid hormones arises from dysfunction of the thyroid gland itself, the pituitary gland, which produces thyroid-stimulating hormone (TSH), or the hypothalamus, which regulates the pituitary gland via thyrotropin-releasing hormone (TRH). Concentrations of TSH increase with age, requiring age-corrected tests (Surks and Hollowell, 2007). Hypothyroidism affects between three and ten percent of adults, with incidence higher in women and the elderly (Villaret. al., 2007; Fatourechi, 2009; Gharibet. al., 2009).

2.1 Types of Thyroid Disorders: Thyroid disorders include

- 1) Hyperthyroidism (abnormally increased activity).
- 2) Hypothyroidism (abnormally decreased activity).
- 3) Thyroiditis, inflammation of the thyroid.
- 4) Thyroid nodules, which are generally benign thyroid neoplasms (tumours), but may be thyroid cancers.

All these disorders may give rise to a goiter, that is, an enlarged thyroid.

2.2 Causes of Thyroid problem:

When the body cannot get enough iodine, a goiter forms, which impairs thyroid function, causing hypothyroidism. Feeding goitrogenic foods as a significant part of the diet, human and iguana, can thus lead to hypothyroidism. This leads to reduced activity levels, reduced metabolic rate, muscle and joints aches and pains, and it also causes moderate to severe headaches, vision problems, and hair loss, as well as a host of other systems.

Hyperthyroidism, or overactive thyroid, is due to the overproduction of the thyroid hormones T3 and T4, which is most commonly caused by the development of Graves' disease, an autoimmune disease in which antibodies are produced which stimulate the thyroid to secrete excessive quantities of thyroid hormones. It presents with symptoms

such as a thyroid goiter, protruding eyes (exophthalmos), palpitations, excess sweating, diarrhoea, weight loss, muscle weakness and unusual sensitivity to heat.

3. Materials and Methods

An ethnobotanical survey was carried out among the tribals and rurals of Chitrakoot district during different season of February 2013 to August 2014. The present study is based on the survey and collection of the data from the native informants, like Vaidhya or Hakim and local people who have knowledge about the uses of medicinal plants with their Botanical name, local name of plant species, family, part used and medicinal uses are described in detail. Herbarium specimens prepared following the standard method (Jain and Rao, 1978) have been deposited in the herbarium at Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot, Satna (M.P.) India.

4. Study Area

Chitrakoot district lies between 24°53' and 25°55' N latitude and 79°59' and 81°34' E longitude. The majority of the population living here is tribal. The main tribal communities are Kols, Gond etc. These people depends upon the forests resources for their medicine, food and shelter. The forest of Chitrakoot is tropical mixed dry deciduous type. The tribal people rarely consult the modern physician for the treatment of their common ailments and chiefly depends upon the application of their own recipes of herbs for the treatment of their diseases, thus, it provides a suitable ground for a systematic ethnobotanical investigations.

5. Ethnobotanical Observation

The plant species were enumerated with its botanical name, family, local name, part used and mode of intake and use. The plant species have been arranged alphabetically on the basis of their botanical name.

1. *Aeglemarmelose* (L. Corr.)

Family: Rutaceae

Local name: Bael/Shriphal

Part used: Leaves

Medicinal Uses: An infusion of leaves of *Aeglemarmelosis* given half cup thrice a day for 7-10 days in the treatment of hyperthyroidism.

2. *Aloe barbadensis* (Mill.)

Family: Liliaceae

Local name: Ghee kwar / Gwarpatha

Part Used: Leaves

Medicinal Uses: An infusion of leaves of *Aloe* is given twice a day in the treatment of hyperthyroidism.

3. *Avenasativa* Linn.

Family: Poaceae

Local name: Jai/Javi

Part used: Young seeds

Medicinal Uses: Green oats used as food that contains minerals and B vitamins that support general health as well as aiding in thyroid function.

4. *Bacopamonnieri* (L.) Pennell.

Family: Scrophulariaceae

Local name: ChhotiBrahmi / Jal-Neem

Part Used: Leaves

Medicinal Uses: An infusion of leaves of *Bacopamonnieri* is given half cup twice a day for 7-10 days in the treatment of hypothyroidism.

5. *Brassica oleracea* (Linn.), var. *botrytis* (Linn.)

Family: Brassicaceae

Local name: Phulgobhi

Part used: Vegetative Inflorescence

Medicinal Uses: This cruciferous vegetable can potentially be goitrogenic (inducing goiter formation). They contain enzymes that interfere with the formation of thyroid hormone in people with iodine deficiency (McDougall, 2005; Shomon, 2009). Cooking for 30 minutes significantly reduces the amount of goitrogens and nitriles. At high intake of crucifers, the goitrogens inhibit the incorporation of iodine into thyroid hormone and also the transfer of iodine into milk by the mammary gland (Masterjohn, 2008).

6. *Brassica oleracea* (Linn.), var. *capitata* (Linn.)

Family: Brassicaceae

Local name: Bandagobhi / Patgobhi

Part used: Leaves

Medicinal Uses: This vegetable can potentially be goitrogenic (inducing goiter formation). They contain enzymes that interfere with the formation of thyroid hormone in people with iodine deficiency (McDougall, 2005; Shomon, 2009). Cooking for 30 minutes significantly reduces the amount of goitrogens and nitriles. At high intake of crucifers, the goitrogens inhibit the incorporation of iodine into thyroid hormone and also the transfer of iodine into milk by the mammary gland (Masterjohn, 2008).

7. *Linum usitatissimum* (Linn.)

Family: Linaceae

Local name: Alsi/ Bijari

Part used: Seeds

Medicinal uses: Flaxseeds are good for thyroid health. Flaxseed helps in boosting the production of thyroid hormones. This results to reduced susceptibility to hypothyroidism.

8. *Morus alba* Linn.

Family: Moraceae

Local name: Shahtoot

Part used: Leaf

Medicinal uses: About 100 g leaf and 5 g *Piper nigrum* L. (Kali-Mirch) are ground together with the required quantity of water and filtered. One or two teaspoonful of the preparation is administered orally thrice a day for two to six months to cure goiter.

9. *Pistia stratiotes* (L.)

Family: Araceae

Local name: Water Cabbage / Jalkumbhi

Part used: Leaves

Medicinal uses: A widespread weed in rivers and lakes is applied in paste form topically to reduce the swelling of Thyroid.

10. *Withania somnifera*(L.)**Family:** Solanaceae**Local name:** Ashwagandha**Part used:** Roots**Medicinal Uses:** An aqueous extract of dried *Withania* root is given daily for 20 days in the treatment of hypothyroidisms.**11. *Zingiberofficinale* (Rosc.)****Family:** Zingiberaceae**Local name:** Adrak**Part used:** Rhizome**Medicinal Uses:** *Crataevanurvala*(Bark)-2 tbsp., *Bauhinia variegata* (Bark)-2 tbsp., *Glycyrrhizaglabra*(Roots)- 1 ½ tbsp., *Sidacordifolia*(Leaves)-1 ½ tbsp., *Terminaliabellirica*(Fruits)- 1 tbsp., *Terminaliachebula*(Fruits)- 1 tbsp., *Zingiberofficinale*(Rhizome)- 1 tbsp. are dried and mixed. About 2 tbsp. dried powder should be given to the patient twice daily with lukewarm water for hypothyroidism.**6. Result and Discussion**

During ethnobotanical survey of Chitrakoot district (U.P). 11 plants belonging to 10 families and were recorded as effective remedies used by the tribal and rural people to treat the thyroid problem. In present investigation we have observed that 9 plants are useful to cure hypothyroidism whereas 2 plants in hyperthyroidism. The present study revealed that the folk medicine is a very important aspect of medical anthropology and is rightly attracting. The use of plants to cure diseases and relieve physical sufferings has started from the earliest times of mankind's history (Hill, 1989). Nowadays, the use of plants as a way of treatment is still very important for human beings (Kultur, 2007).

Thyroid disease is common and it is frequently treated by herbal medicine or a combination of herbs and drugs. Many modern medicinal therapies and medicines are available for the treatment of this disease but these methods are costly, non-affordable by the poor section and the re-occurrence rate is also high. The safest and cheapest remedy for the treatment includes the use of medicinal plants. It is very important to show an interest in indigenous system of medicine and traditional herbal remedies which are regarded as quite safe with no side effects and should be cost effective, readily available and easily affordable.

7. Acknowledgement

We are thankful to the Dr. A. P. Saxena, Rtd. Head, Department of Botany in Pt. J. N. P. G. College-Banda for providing facilities and also thankful to the tribal and rural people of concerning areas for providing relevant information of plant species.

References

[1] Fabricant, D.S. and Farnsworth, N.R. (2001) The value of plants used in traditional medicine for drug discovery. *Environ Health Pers.*, 109 (Suppl. 1): 69-75.

- [2] Fatourechi, V. (2009) "Subclinical hypothyroidism: an update for primary care physicians". *Mayo. Clin. Proc.*, 84 (1): 65-71.
- [3] Gharib, H.; Tuttle, R.M.; Baskin, H.J.; Fish, L.H.; Singer, P.A. and McDermott, M.T. (2004) "Subclinical thyroid dysfunction: a joint statement on management from the American Association of Clinical Endocrinologists, the American Thyroid Association, and the Endocrine Society". *Endocr. Pract.*, 10 (6): 497-501.
- [4] Hill, A.F. (1989) *Economic Botany: a Text Book of Useful Plants and Plant products*, second ed. Mc Graw Hill Book Company, Inc., New York, p. 560.
- [5] Jain, S.K. and Rao, R.R. (1978) *A Handbook of Field and Herbarium Methods*. Today and Tomorrow Publishers, New Delhi.
- [6] Jain, S.K. (1991) *Dictionary of Indian folk medicine and ethnobotany*. Deep Publication, New Delhi.
- [7] Kultur, S. (2007) Medicinal plants used in Kırklareli Province (Turkey). *J. Ethnopharmacol.* 111: 341-364.
- [8] Masterjohn, C. (2008) "Bearers of the Cross: Crucifers in the Context of Traditional Diets and Modern Science". The Weston A. Price Foundation for Wise Traditions in Food, Farming, and the Healing Arts.
- [9] McDougall, J. (2005) "Thyroid Deficiency Strikes One in Six". *McDougall Newsletter.*, 4 (12).
- [10] Perumal, S.R.; Ignacimuthu, S. and Patric, R.D. (2008) Preliminary screening of ethnomedicinal plants from India. *Eur. Rev. Med. Pharmacol. Sci.*, 12: 1-7.
- [11] Rao, R.R. (1989): Ethnobotanical studies in Meghalaya- Some interesting Reports of herbal Medicines. In Jain S.K. ed., *Methods and Approaches in Ethnobotany*. Society of Ethnobotanists, Lucknow. pp.: 39-47.
- [12] Rao, R.R. (1994): Biodiversity in India, Bishen Singh Mahendra Pal Singh, Dehra Dun. pp.: 1-315.
- [13] Shomon, M. (2009) "What are Goitrogens and How Do they Affect the Thyroid?" *Thyroid Disease*. About.com.
- [14] Sikarwar, R.L.S.; Pathak, B. and Jaiswal, A. (2008) Some unique ethnomedicinal perceptions of tribal communities of Chitrakoot, Madhya Pradesh. *Ind. J. of Tradnl. Knowledge*, 7(4): 613-617.
- [15] Surks, M.I. and Hollowell, J.G. (2007) "Age-specific distribution of serum thyrotropin and antithyroid antibodies in the US population: implications for the prevalence of subclinical hypothyroidism". *J. Clin. Endocrinol. Metab.* 92 (12): 4575-82.
- [16] Tripathi, M. and Sikarwar, R.L.S. (2013) Some Traditional Herbal Formulations of Chitrakoot region, Madhya Pradesh. *Ind. J. of Tradnl. Knowledge*, 12(2): 315-320.
- [17] Villar, H.C.; Saconato, H.; Valente, O. and Atallah, A.N. (2007) "Thyroid hormone replacement for subclinical hypothyroidism". In Villar, Heloisa Cerqueira Cesar Esteves. *Cochrane Database syst Rev* (3).

Author Profile

Ms. Priyanka Verma was born in 3rd August 1990. She is a research scholar, working in the field of Ethnobotany from Department of Botany in Mahatma Gandhi Chitrakoot Gramodaya

Vishwavidyalaya, Chitrakoot, Satna (M.P.), India. She has done B.Sc. and M.Sc. in Botany from Pt. JawaharLal Nehru P.G. College-Banda (U.P.) in 2009 and 2011 respectively. She is the member of International Society of Environmental Botanists (ISEB) National Botanical Research Institute Campus, Lucknow-226001, India. She has to her credit various research papers in scientific journals.

Ms. Kaynat Jameel was born in 7th July 1987. She received her M.Phil. in “ To Study the effect of stone crusher pollution on the some trees in Lakshmanpura (Distt. Jhansi)” from Bundelkhand University Jhansi, India in 2010. She is currently working as a research scholar in Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot, Satna (M.P.), India. She has published papers in various journals and conferences. Her research interests are Ecology, Environmental Sciences and Ethnobotany.

