



## CURE OF GOITRE (THYROID DISORDER) BY HERBAL MEDICINES: A REVIEW

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### ABSTRACT

Plants have proven to be useful in goitre disease. Metabolic disorder in human beings damage the functioning of the body. Medicines from the plants have the capacity to cure metabolic disorders including goitre. The main aim of this review paper is to summarize the symptoms, types of thyroid diseases (goitre) and the chemical constituents of plants used in thyroid disorders.



**KEYWORDS :** Herbal plants, Thyroid disorders, goitre, Hypo and hyper thyroidism.

### INTRODUCTION

A Goitre commonly develops as a result of iodine deficiency or inflammation of the thyroid gland. Goitre is cured in Ayurveda by herbal medicines in India. To achieve the goal of World Health Organisation upto 2025 health for all could be achieved by the curative treatments available in Indian systems of treatment.

Goitre disease is most common in forest and hilly areas. It is found to be hereditary in illiterate peoples and the persons who are using tank water (Rajesh Shukla,1996).

### CAUSE FOR THE DISEASE

Iodine deficiency is the main cause of the diseases especially in hilly areas. Other causes include poverty, malnutrition, lack of knowledge about the disease and heredity factors. This disease is more dangerous in pregnant women. Infected women with goitre give birth to disabled children.

### Symptoms

- Swelling over the neck or gland
- Physical & mental development is blocked
- Patients found weak and dizziness
- Constipation and dry skin
- Unbearable / uncomfortable to hot and cold weather.
- Effects are over kidney, liver, heart muscles etc.
- Malnutrition

### Pathology

Physically and mentally ill developed with air passage is covered by swelling of glands over the neck.

## MORPHOLOGY OF GOITRE

Goitres may be classified according to the growth pattern or the size of the growth;

### Growth pattern

- Uninodular goitre: Has one thyroid nodule.
- Multinodular goitre: It has multiple nodules (Frilling, A et al.,2004) and suppressing TSH-dependent growth and function in the rest of gland ( Gandolfi et al.,2004).
- Diffuse goitre: Thyroid appears to be enlarged due to hyperplasia.

### Size

- ✓ Class I It is found by palpation.
- ✓ Class II: It is palpable.
- ✓ Class III: The goitre is very large and is retrosternal.

### Ayurvedic treatment

Rajesh Shukla (1996) mentioned the ayurvedic treatment method as

1. Kachnar Guggul – 3 tablets morning and evening with triphala kwath
2. Local application of
  - a) Guggul (*Commiphora mukul*)
  - b) Raswanti for local application
  - c) Sulphur – on swelling of neck
  - d) *Ficus racemosa*
3. Praval Pisti ½ gm  
Ras manikya ¼ gm with milk 2 times/ day
4. Argwadh Seeds – During night with hot water to remove constipation  
*Cassia fistula* or *Ocimum Sanctum* and other plants used with urine of cow (Gomootra)
5. Surgery is possible now a days.

### Diet:

- Green vegetables
- Milk
- Carrot, onion, *Annona squamosa*, Rich diet

### Restricted Diet:

- Fish, Cabbage, Cauliflower, Brinjal, Ladys finger, Urad, Gram Dal etc.

### Prevention of Goitre

- Diet should be protected seriously.
- Iodised salt should be used
- Marketing of ordinary salt is strictly prohibited
- Public awareness should be done about the disease.

### Thyroid disorder

It can be categorised in two ways

#### 1. Hypothyroidism

It means the suppression of thyroid function (Yarnell Eric and Abascal Kathy, 2006). Hypothyroidism divided into 2 ways primary and secondary hypothyroidism.

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Dysfunction of thyroid gland, lack of TRH (hypothalamic TSH releasing hormone) and TSH (thyroid stimulating hormone) and inadequate nutrition of iodine diet are the important causes of hypothyroidism (Garg, 2005).

### Symptoms of Hypothyroidism

The following are the symptoms of hypothyroidism

- Excessive weight gain
- Fatigue
- Dry skin, coarse & itchy
- Cold
- Low BP
- Swelling / Puffiness in hands, feet, eye and face
- Hair get dry, coarse & thin.
- Constipation (Truter, Ilse, 2011; Agency for Healthcare Research & Quality, 2004).

### Hyperthyroidism

It is also known as thyrotoxicosis. It is the hyperactivity of thyroid gland, swollen the thyroid and the body process.

### Symptoms of Hyperthyroidism

Common Symptoms are

- Skin becomes thin
- Hair becomes brittle
- Panic diseases
- Muscle weakness in upper arms and thighs
- Shaking hands
- Heart racing
- Weight loss
- Less frequent flow of menstrual periods (Garg, 2005, Palacios et.al., 2012; Mary Bove, 2012).

### Treatment of Hypothyroidism

Following list of plants are used for the treatment of hypothyroidism

- a) *Centella asiatica*
- b) *Withania somnifera*
- c) *Commiphora mukul*
- d) *Plectranthus barbatus* (Brown & Francis, 2011; Garg,2005)
- e) *Fucus vesiculosus*
- f) *Bacopa monnieri*

### Plants used for Hyperthyroidism

- *Lycopus virginicus*
- *Lycopus europaeus*
- *Lycopus lucidus*
- *Melissa officinalis*
- *Rosmarinus officinalis*
- *Salvia officinalis*
- *Aegle marmelos*

- *Aloe barbadensis*
- *Lithospermum ruderale*

### ANTITHYROID ACTIVITY OF HERBAL PLANTS

Table 1 depicts the Chemical Constituent of Plants used in Thyroid diseases. Genistein and daidzein from soy (*Glycine max*) inhibit thyroperoxidase that catalyses iodination and thyroid hormone biosynthesis. Rutabaga and turnips contain a thiourea like product (progoitrin), a precursor of goitrin that also interferes with thyroperoxidase ( Delange et al.,1989).

Genistein and daidzein from soybean (*Glycine max*) inhibit the thyroperoxidase and also hypothyroid effects include *Pennisetum glaucum* and *Digitaria exilis*; thiocyanate is also found in Brassicaceae plants (Gustavo and Román ,2007).

The most helpful herbal remedies for the thyroid disorders are sea plants, bladder wrack, a form of kelp (Mary Shomon ,2012).

### CONCLUSION

Goitre disease is common and it is treated by plants. Modern medicines are available for the treatment of this disease but these medicines are costly, non-affordable by the poor section and re-occurrence rate is also high. The safest and cheapest source of treatment includes the use of medicinal plants and easily affordable.

### REFERENCES

- Agency for Health Care Research and Quality. U.S. Department of Health and Human Services. Oregon Health & Science University. 2004.
- Anshita Gupta, Suchita Wamankar, Bina Gidwani and Chanchal Deep Kaur. 2016. Herbal drugs for thyroid treatment. *International Journal of Pharmacy and Biological Sciences*. Vol. 6(1): 62-70.
- Brown, R. and Francis G.L. 2011. Autoimmune thyroid disorders. *Journal of Thyroid Research*: 1-2.
- Delange F. Cassava and the thyroid. In: Gaitan E, editor. *Environmental goitrogenesis*. Boca Raton, Florida: CRC Press,1989, p.173–93.
- Frilling, A; Liu, C; Weber, F (2004). "Benign multinodular goiter". *Scandinavian Journal of Surgery*. **93** (4): 278–81. doi:10.1177/145749690409300405. PMID 15658668.
- Gandolfi, P. P.; Frisina, A; Raffa, M; Renda, F; Rocchetti, O; Ruggeri, C; Tombolini, A (2004). "The incidence of thyroid carcinoma in multinodular goiter: Retrospective analysis". *Acta bio-medica : Atenei Parmensis*. **75** (2): 114–7. PMID 15481700.
- Garg, S.C. 2005. Essential oils as therapeutics: *Natural Product Radiance*: Vol. 4(1): 18-26.
- Gustavo C. Román; University of Texas Health Sciences Center at San Antonio, San Antonio, Texas, USA Veterans Administration Hospital, San Antonio, Texas, USA. *Journal of the neurological sciences*, 262, 2007, 15-26.
- Mary Bove. 2012. Botanical insights into autoimmune thyroid disease. *Diversified Business Communications*: 1-9.
- Mary Shomon(2012). Retrieved from: [www.ehow.com/way\\_5215104\\_herbal-treatments thyroid.html](http://www.ehow.com/way_5215104_herbal-treatments_thyroid.html).
- Nagarathna, P.K.M. and Deepak Kumar Jha. 2013. Study on Antithyroid property of some herbal plants: *International Journal of Pharmaceutical Science Review and Research* 23(2): 203-211.
- Palacios, S.S., Corrales E.P., Galofre, J.C. 2012. Management of Subclinical Hyper Thyroidism: *Intl. J. Endocrinol Metab*. Vol. 10(2): 490-496.
- Priyanka Verma and Kayanat Jameel. 2014. Studies on traditional treatment of thyroid by the tribals of Chitrakoot district, Uttar Pradesh. *International Journal of Science and Research*. Vol. 3(10): 1370-1373.

Rajesh Shukla, 1996. Cure of goitre by Ayurvedic herbal medicines. In: Herbal medicines, Biodiversity and Conservation Strategies (Edited by Rajak, R.C. and M.K. Rai). International Book Distributors, Dehradun.

Truter Ilse. 2011. Clinical Review: Hyper and Hypothyroidisms: Afr Pharm J. Vol. 78(6): 1-14.

Yarnell Eric and Abascal Kathy. 2006. Botanical medicine for thyroid regulation: Alternative and complementary: 107-112.

<https://en.wikipedia.org/wiki/>

**Table 1: Chemical Constituent of Plants used in Thyroid diseases ( Anshita Gupta et al., 2016)**

	Plant Name	Chemical Constituent	Usage
Hyper thyroidism	<i>Lycopus virginicus</i>	Rosmarinic acid Lithospermic acid	Thyrosuppressive agent
	<i>Leonurus cardiac</i>	Qurectin	Anti-inflammatory activity
	<i>Melissa officinalis</i>	Rosmarinic acid	Thyrosuppressive agent
	<i>Lithospermum ruderale</i>	Rosmarinic acid	Thyrosuppressive agent
	<i>Rosamarinus officinalis</i>	Rosmarinic acid	Thyrosuppressive agent
	<i>Salvia officinalis</i>	Rosmarinic acid	Thyrosuppressive agent
Hypo thyroidism	<i>Centella asiatica</i>	Madecassic acid	Enhance synthesis of T4
	<i>Withania somnifera</i>	Withaferin	Enhance antiperoxidation
	<i>Commiphora mukul</i>	Guggulosterone	Thyroid stimulant
	<i>Fucus vesiculosus</i>	Iodine ,L-Fucose	Goitre, myxedema