Available online at www.ijpqa.com
International Journal of Pharmaceutical Quality Assurance 2010; 2(2), 35-37

ISSN: 0975 9506

Short Communication

Quality Assessment of Different Variants of Yogaraj Guggulu

A K Meena[1], Ayushy Sachan[2*], Ramanjeet Kaur[2], Bhavana Pal[2], M. M. Rao[1], Brijendra Singh[2] and Santosh Kumar Mishra[2]

[1]*National Institute of Ayurvedic Pharmaceutical Research, Patiala – 147001, Punjab, (India)*
[2]*School of Pharmaceutical Sciences, Shobhit University, Meerut, UP, (India)*

ABSTRACT
Yogaraj-guggulu is a widely used Ayurvedic formulation.Standardisation of the Ayurvedic medicine, *Yogaraja guggulu* has been achieved by following modern scientific quality control procedures. It has been shown to have significant anti-inflammatory activity in formaldehyde-induced arthritis and in croton oil granuloma. For the standardization of this drug physico-chemical parameters were carried out such as moisture content, ash values, extractability in water and alcohol were carried out. Thin Layer Chromatography studies were also carried out to ascertain the quality of this drug.
***Keywords*:** Ayurvedic formulation, Standardisation, Quality control, Guggulu

INTRODUCTION

Commiphora mukul, also known as Guggul, is a small, spiny tree reknowed for the medicinal properties of its sap, or gum. [1-3] Also called Mukul myrrh, Guggul has been used in the Middle East, India and China for thousands of years to treat conditions as diverse as infections, bronchial and digestive complaints.[4] It is especially associated with women's health and purification rituals. Comniphora mukul is referred to in ancient Hebrew, Greek and Latin texts as bdellium. [5]
This formulation is used in conditions like arthritis, myalgia and hyperlipidemia. It has been shown to have significant anti-inflammatory activity in formaldehyde-induced arthritis and in croton oil granuloma.[6-7] Guggulu, the resinous material of Commiphora mukul, the largest single ingredient of Yogaraj-guggulu has been mentioned to be useful in disorders of lipid metabolism in Ayurvedic literature 600 B.C.[8] Hypolipidemic activity of Guggulu has been shown by various workers;[9], [10], [11] However, guggulu as a single drug is rarely used in practice. Yogaraj-guggulu is the commonly used formulation. A large dose of 12 gm/day has been prescribed in ancient Ayurvedic texts.[12] Smaller doses from 3 to 5 gm/day are usual in the present day practice.
Yogaraja guggulu is a polyherbal formulation consisting of 29 ingredients which are tabulated in Table 2 [13]

MATERIAL AND METHODS

The two sample of Yogaraj *guggulu* as sample 1 and 2 are taken (in purified form) .The authenticity of the Yogaraj guggulu of the procured herbs was checked and confirmed. Samples of the raw material were then examined for probable adulterants, which were found to be absent. Samples of the purified raw material were then considered for quality analysis in accordance with WHO guidelines for acceptance.

***Corresponding author: Ayushy Sachan**
School of Pharmaceutical Sciences,
Shobhit University, Meerut.
E-mail: ayushy .sachan@gmail.com

Table 1: Physico–chemical parameters of the samples 1 and 2

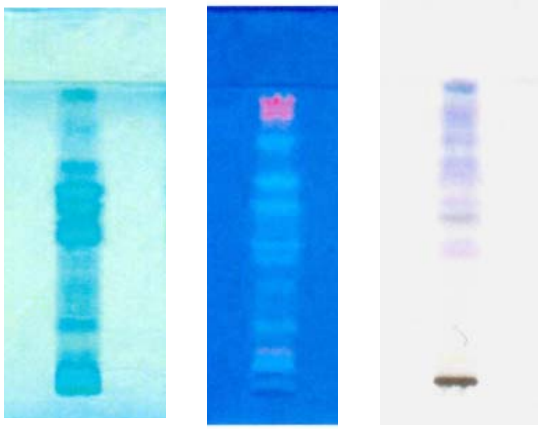
Parameter	Sample 1	Sample 2
Average weight (g)	0.5005	0.3703g
Loss on drying at 105°C (% w/w)	3.84	10.76
Total Ash (% w/w)	7.02	8.10
Acid –insoluble ash (% w/w)	0.987	1.01
pH (10% w/v aqueous solution)	4.14	4.58
Water –soluble extractive (% w/w)	29	39
Alcohol- soluble extractive (% w/w)	15.45	10.15
Resin content (%w/w)	4.45	4.26
Hardness (Kg)	8.15	8.45
Uniformity of weight	Complies	Complies
Friability	0.004	0.0042
Disintegration time	30 minutes	1 hour 10 minutes

RESULTS AND DISCUSSION

Physico–chemical parameters of the samples of Yogaraj *guggulu* are tabulated in Table 1. The loss on drying at 105°C of samples 1 and 2 were found to be 3.84 and 10.76%w/w respectively. Analytical results showed total ash values and water soluble ash content were 7.02% w/w and 8.87%w/w respectively. The amount of acid insoluble ash present in the plant samples were 0.987%w/w and 1.09 respectively. The water soluble extractive values indicated the presence of sugar, acids

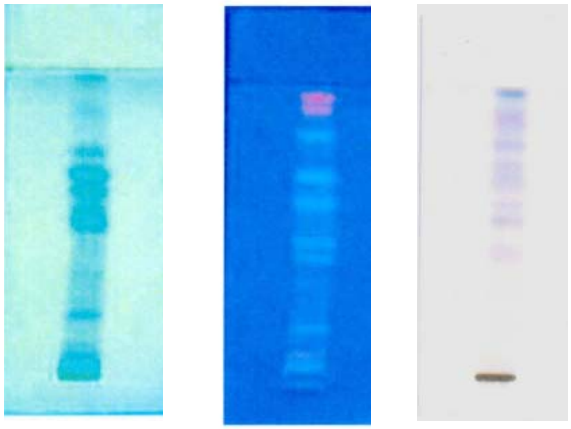
Table 2: Ingredients of *Yogaraja guggulu*

Sanskrit name	Plant name	Part used	Quantity
Chitraka	Plumbago zeylanica Linn.	Root	1 part
Pippalimoola	*Piper longum* Linn.	Root	1 part
Yavani	*Hyoscyamus niger* Linn.	Seed	1 part
Krishnajeeraka	*Nigella sativa* Linn.	Seed	1 part
Vidanga	*Embelia ribes* Burm. f.	Seed	1 part
Ajamoda	*Apium graveolens* Linn.	Seed	1 part
Jeeraka	*Cuminum cyminum* Linn.	Seed	1 part
Devadaru	*Cedrus deodar* (Roxb.) Loud.	Heart wood	1 part
Chavya	*Piper chaba* Hunter, non Blume.	Root	1 part
Ela	*Elettaria cardamomum* Maton	Fruit	1 part
Saindhavalavana	Rock salt	-	1 part
Kushta	Saussurea lappa *C.B.Clarke*	Root	1 part
Raasna	*Alpinia galangal* Willd.	Root	1 part
Gokshura	*Pedalium murex* Linn.	Seed	1 part
Dhanyaka	*Coriandrum sativum* Linn.	Seed	1 part
Haritaki	*Terminalia chebula* Retz.	Fruit	1 part
Vibhitaki	*Terminalia bellirica* Roxb.	Fruit	1 part
Amalaki	*Emblica officinalis* Gaertn.	Fruit	1 part
Musta	*Cyperus rotundus* Linn.	Root nodules	1 part
Shunthi	*Zinziber officinale* Rosc.	Stem	1 part
Maricha	*Piper nigrum* Linn.	Seed	1 part
Pippali	*Piper longum* Linn.	Fruit	1 part
Twak	*Cinnamomum zeylanicum* Breyn.(Blume.)	Bark	1 part
Usheera	*Vetiveria zizanioides* (Linn.) Nash	Root	1 part
Yavakshara	*Hordeum vulgare* Linn.	Plant ash	1 part
Talisapatra	*Taxus baccata* Linn.	Leaf	1 part
Patra	*Cinnamomum tamala* Nees & Eberm	Leaf	1 part
Guggulu	Commiphora *mukul* (Hook.ex Stocks) Engl.	Oleogum resin	27 parts
Ghrita	Cow ghee / Clarified butter	-	1 part



254nm **366nm** **After Derivatisation**

Fig 1. TLC of Yogaraj guggulu sample 1



254nm **366nm** **After Derivatisation**

Fig 2 TLC of Yogaraj guggulu sample 2

and inorganic compounds. The alcohol soluble extractive values indicated the presence of polar constituents like phenols, alkaloids, steroids, glycosides, flavonoids.

In addition, TLC was done with methanol extract of YRG[14]. A mixture of toluene and ethyl acetate (7:3) for sample 1 and toluene and ethyl acetate (3.5:3.0) for sample 2 was used as the mobile phase and vanilline solution as a visualizing agent. Rf values were calculated.

CONCLUSION

The Yogaraj guggulu samples were studied and described along with physico-chemical parameters along with TLC studies in authentification for quality control. Yogaraj guggulu exhibits a set of diagnostic characters, which will help to identify the drug in tablet form.

ACKNOWLEDGEMENT

The authors are very grateful to Director General of CCRAS, New Delhi and for providing encouragement and facilities for carrying out this work. Authors are thankful to Ms. Rekha her assistance for the paper.

REFERENCE

1. Singh BB, Mishra LC, Vinjamury SP, Aquilina N, Singh VJ, Shepard N.The effectiveness of Commiphora mukul for osteoarthritis of the knee: an outcomes study. Altern Ther Health Med. 2003 May-Jun; 9(3):74-9.
2. Singh SV, Zeng Y, Xiao D, Vogel VG, Nelson JB, Dhir R, Tripathi YB. Caspase-dependent apoptosis induction by guggulsterone, a constituent of Ayurvedic medicinal plant Commiphora mukul, in PC-3 human prostate cancer cells is mediated by Bax and Bak. Mol Cancer Ther. 2005 Nov;4(11):1747-54.
3. Fiatterjee A, Pakrashi CS The treatise of Indian medicinal plants. PID, CSIR, New Delhi 1994.
4. Patil VD, Nayak UR, Sukh D. Chemistry of Ayurvedic crude drugs - III, guggulu (resin from ' Commiphora mukut)-3, long chain aliphatic tetrols, a new class of naturally occurring lipids. Tetrahedron 1973; 29:1595.
5. Patil VD, Nayak UR, Sukh D Chemistry of Ayurvedic crude drugs - II, guggulu (resin from Commiphora mukul)2 diterpenoid constituents. Tetrahedron 1973;29:341
6. Patil VD, Nayak UR, Sukh D 1972 Chemistry of Ayurvedic crude drugs -1, guggulu (resin from Commiphora mukul)steroidal constituents. Tetrahedron 28:2341.
7. Karandikar, G. K., Gulati, O. D. and Gokhale, S. D.: Anti-inflammatory. activity of some Ayurvedic remedies and their influence on the hypophysis adrenocortical axis in white rats. Ind. J. Med. Res. 1960; 48: 482-487.
8. Sushrut. Quoted in, "Sushrut Samhita." Editor: Vaidya Jadavji Trikamji Acharya, Nirnayasagar Press, Bombay, India, 1931, p. 71.
9. Khanna D S, Agarwal OP, Gupta S K, Arora R B.A biochemical approach to anti- atherosclerotic action of Commiphora mukul: an Indian indigenous drug in Indian domestic pigs (Sus scrofor) Ind. J. Med. Res. 1969; 57: 900-905.
10. Satyawati, G. V.: Effect of indigenous drug on disorders of lipid metabolism with special reference to atherosclerosis and obesity: Thesis for the award of degree of Doctor of Ayurvedic Medicine, Banaras Hindu University, India, 1966 .
11. Swami Nityanand and Kapoor N. K.: Cholesterol lowering activity of the various fractions of guggulu. Ind. J. Exp. Biol., 2: 395-396, 1971.
12. Shah, N. C.: "Bharat Bhaishajya Ratnakar." Vol. IV. Unjha Pharmacy, Ahmedabad, India, 1935, p. 296.
13. Anonymous, Compendium Medicinal Plants Used in Ayurveda, (Rashtriya Ayurveda Vidyapeeth, Government of India, New Delhi), 1998
14. Anonymous, European Community, European Agency for the Evaluation of Medicinal Products, EMEA/HMPWG/ 25/99, 1999, 56-60.