



Mini Review Paper

Methods of processing of Lac (*Laccifer lacca* Kerr) described in Unani system of Medicine

Aisha Perveen^{1*}, Nasreen Jahan¹, Wadud Abdul¹ and Tanwir Alam M.²

¹Ilmul Advia (Pharmacology), National Institute of Unani Medicine (NIUM, Bangalore-91, Karnataka, INDIA

²Dept. of Preventive and Social Medicine, Allama Iqbal Unani Medical College (AIUMC), Muzaffarnagar, UP, INDIA

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Abstract

Unani and Arab (700-1200 AD) physicians wrote about the medicinal properties of Lac in their books. Basically Lac is Indian origin drug, so they were confused earlier about the exact source and wrongly described it as plant origin drug, but were well versed with its medicinal properties and uses. All the great Unani physicians like Zakaria Razi, Majoosi, Ibn Sina, Rabban Tabri, Ibn Rushd, Ibn Bitar, Ibrahim Al Maghrabi, Hakeem Abdul Hakeem, Najmul Ghani, Jurjani and Kabeeruddin indicate extensively the medicinal use of Lac for various diseases in their respective books and treatises. Abu Hanifa also recommends its use as a medicine. 71 various methods are described for the processing of crude drugs in unani literature. Crude lac which is purchased from market or collected from any other source contains contamination like dirt, dust, insect's remains, bird droppings, tree parts, branches, twinges and leaves etc. Before use these impurities have to be removed. Processing is done either to remove the impurities and toxicity or/and to prepare the drug in such a way so that the desired effect of the drug can be attained. Specific methods are mentioned in unani literature for the processing of crude lac is being discussed in this article.

Keywords: Lac, Luk Mghsool, *Laccifer lacca* kerr., *Coccus lacca*, Unani System of medicine.

Introduction

It is well known fact that the various medicinal plants describe in Unani medicine play a vital role against range of diseases. Herbs as a whole or their extracts have significant medicinal values¹. In Arabic Lac is known as Luk². It is a resinous secretion from a scale insect called *Laccifer lacca* Kerr as a protective covering that inhabits on Ber (*Ziziphus marutiana*), Palas (*Butea monosperma* syn. *frondosa*) and Kusum (*Schleichera oleosa*). It is one of the most valuable gifts of Nature to man and only known natural commercial resin of animal origin. The resin so obtained after processing the raw Lac (Stick Lac) comprised of a natural raw material with exceptional environmentally compatible properties, which is biodegradable and generally recognized as physiologically safe.³ To produce 1 kg of lac resin, around 300,000 insects lose their life. The lac insects yields resin, lac dye and lac wax. Application of these products has been changing and getting extensive with time. Lac is an ingredient having multiple industrial applications. Shellac that is the final product after processing is widely used in confectionary, food products, pharmaceuticals, cosmetics, paints, varnishes etc⁴. Lac resin, dye etc. still find extensive use in Alternative systems of medicine⁵.

Description⁵: Lac insect belongs to super family Coccoidea which includes all scale insects. Scale insect is a common name for about 2000 insect species found all over the world. Scale insects range from almost microscopic size to more than 2.5 cm.

These insects attach themselves in great numbers to plants. The mouth part of these insects is piercing and sucking type. They can be very destructive to tree-stunting or killing twigs and branches by draining the sap. There are six genera of lac insects, out of which only five secrete lac, and only one, i.e. *Laccifer* secretes recoverable or commercial lac. The commonest and most widely occurring species of lac insect in India is *Laccifer lacca* Kerr which produces the bulk of commercial lac.

Distribution⁵: Since the lac insects thrive and feed on certain species of the tropical trees, it is found distributed in South-East Asian countries. Lac is currently produced in India, Myanmar, Thailand, Malaya, Lao and Yuan province of China. India and Thailand are main areas in the world, while India has prime position in relation to lac production. Lac cultivation is introduced into Thailand from India. Over 90% of Indian lac production comes from the states of Jharkhand, Bihar, West Bengal, Madhya Pradesh, Chattisgarh, Eastern Maharashtra and northern Orissa. Some pockets of lac cultivation also exist in Andhra Pradesh, Punjab, Rajasthan, Mysore, Gujarat, and few districts of Uttar Pradesh (U.P.).

Action and Uses of Lac: In unani literature lac is categorized under the animal origin drug having many medicinal benefits. It has been in practice since ages/centuries for its antiobesity, deobsterent and is an excellent liver tonic. Recently it has been pre-clinically evaluated for its hypolipidimic action and antifertility actions showing promising results. Luk (*Laccifer lacca* Kerr) is an important drug of Unani Medicine and it is for

these action haemostatic^{6,7}, siccative^{6,7,8}, liver tonic^{7,9,10}, contraceptive^{8,11,12}, anti inflammatory^{2,7,13}, anti bilious^{8,13}, stomachic^{8,13}, aphrodisiac^{8,13}, detergent^{2,7}, deobstruent^{9, 10, 14}, anti obesity^{9, 10}, expectorant⁷, kidney tonic⁷, emmenagogues. It is indicated to be used as obesity^{9,10}, hyperlipidemia⁷, renal, hepatic & spleen disorders^{2,6,8, 9,13,14}, jaundice^{6,7,8,9,10}, ascitis^{2,6,7,8,9,10}, back ache^{8,13}, premature ejaculation^{7,13}, leprosy^{8,13}, cough^{2,7,8}, hemiplagia^{2,8}, asthma⁷, haemoptysis², epilepsy⁸, chicken pox⁸, ulcerations⁸, worm infestation⁸, palpitation^{2,9,10}

In *Unani*, Lac is being used for its anti-obesity effect since centuries. Its compound “*Safoofe muhazzil*” is one of the most popular and acceptable drugs of Unani medicine in Indian sub-continent, being prescribed in Unani OPDs for the anti-obesity activity. *Lac* is not much evaluated in biological field instead it is vastly studied for its industrial and other commercial purposes. An indigenous preparation (AYUSH-47) having *Coccus lacca* as one of the ingredients in combination with *Saraca indica*, *Areca catechu*, gold and sugar has claimed to exhibit anti-implantation effect in rabbits¹⁵. Ghufraan *et al* (2011) tested the *lac* for its effects on diet induced hyperlipidemia in albino rats¹⁶. Powdered form of *Luk* is advised as contraceptive by various *Unani* physicians since ages^{8,11,12}.

Few Famous Compound formulations of Lac: i. *Safoofe muhazzil*¹⁷, ii. *Dwaul Luk*¹⁸, iii. *Dwaul zarishk*¹⁸, iv. *Qurse ambar baris*¹⁹, v. *Qurse ambar baris qawi*¹⁹, vi. *Qurse Luk*²⁰.

Methods

Processing methods of Lac according to unani literature^{8,9,21}: *Lac's insect* produce resin like secretion, which envelops it and take shape of encrustation. The twigs containing encrustations are collected. Encrustations are separated out to get *Luk ghair-maghsool* (*Crude/unprocessed Lac*) which is used only after processing. Crude lac, as obtained by scraping the resinous encrustations from harvested twigs, is known in commerce as *sticklac*. It is seldom used without refining. Processing is done according to *unani* literature to remove undesirable matter, impurities and to increase its potency for medicinal use by following methods.

First method: Crude lac is freed from branches and other adherent plant parts then it is melted on flame of lamp and allowed to fall in the vessel containing very hot water. The impurities will remain suspended in hot water and pure lac will settle down. This whole process should be repeated thrice before bringing lac into use^{8,9,21}.

Second method: In this method crude lac is cleaned by crushing and handpicking for big impurities like branches, leaves etc. Two drugs, roots of *Izkhar* (*Cymbopogon citrates*) and roots of *Reward chini* (*Rheum emodi*) are taken half the weight of lac. Their decoction is prepared according to method described in *unani* literature i.e. taking weight of drug and water

in ratio 1:16 and boiling it until it reduce to one forth in volume. The decoction is sieved by sieve no 80 and allowed to cool. Lac is triturated in a mortar containing this decoction for about 6 hours and then sieved through muslin cloth. Lac that remained unfiltered was again subjected to trituration with above prepared decoction. This process is continued till whole lac is filtered. The decoction is then made to stand whole night in refrigerator. The sedimented lac at the bottom is then separated out by decanting the supernatant decoction. Obtained lac is spread in the tray and shade dried^{8,9,21}.

Third method: Lac is hand pick for twigs and other extraneous matter. It is powdered and boiled with water containing root of *Zarawand* (*Aristolochia longa*) and root of *Izkhar*. Here in this method, these both drugs is taken in ratio of 1:2 each to lac, and decoction these two drugs is prepared as described in above (second) method. Now lac is triturated nicely with the already prepared decoction in mortar for about 6-8 hours. Then sieved through muslin cloth and lac that remained unfiltered was again subjected to trituration with above prepared decoction. And the filtered lac is collected after decoction containing lac made to stand the whole night in the refrigerator. This process is continued till whole lac is filtered^{8,9,21}.

Discussion

Processing of crude drugs is done since ages in *unani* system of medicine for various purposes like to increase the potency, to decrease the toxicity, to maximize its penetration and absorption, to free it from unnecessary bulk and other unwanted parts of the plants. Similarly in this case Lac is processed for mainly two reasons firstly to remove impurity i.e., unwanted insect parts and other contamination and to increase its penetration power. This claim of unani system is supported by the study carried out by Aisha *et al*²² and Ghufraan *et al*¹⁶ that they found processed drug gave better results. The chemical and biological changes occurring in the drugs need further more extensive study to strengthen their claim.

Conclusion

Processed lac differs physically from unprocessed lac although these differences are not distinguishable in ordinary chemical tests, they are nevertheless obvious and it is found by experience have particular applications to which they are best adapted. Suggested that the processing method has got a role in more efficacious drug action of lac. The claim of classical literature that the processing by *Izkhar* and *Reward chini* increases the penetration effect or enhances absorption may be suggested as mechanism of this effect, but needs direct experimental evidence.

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