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Valuable Assessment of Quality of PatoladiLepa: An Ayurvedic Paste

Kumaradharmasena LSP[1]*, Fernando PIPK[2], Arawwawala LDAM[2], Kamal S[1] and Peiris KPP[3]

[1]*Department of Shalya Shalakya, Institute of Indigenous Medicine, University of Colombo, Rajagiriya, Sri Lanka*
[2]*Industrial Technology Institute, Bauddhaloka Mawatha, Colombo 07, Sri Lanka*
[3]*Gampaha Wickramarachchi Ayurveda Institute, University of Kelaniya, Sri Lanka*

Abstract

More than one fourth of world population is suffering from dental caries. It is a burden to governments of both developed and developing countries as they have to spend lot of money on treatments for dental caries. PatoladiLepa is an Ayurvedic paste used for dental caries and it consists of 7 plant ingredients, rock salt and honey. The objective of the current research was to determine the organoleptic properties, pH value, total ash, water soluble ash, acid insoluble ash and heavy metals such as Arsenic (As) and Lead (Pb) in PatoladiLepa using standard protocols. Moreover, Thin Layer Chromatography (TLC) fingerprint was developed for the paste using dichloromethane, cyclohexane and methanol in a ratio of 20:6:0.4 v/v. According to the results, PatoladiLepa appeared to be semi solid, blackish brown with pungent taste. In addition, pH value, total ash, water soluble ash, acid insoluble ash were 5.8 ± 1 at 29°C, 12.1 ± 0.0% w/w, 1.8 ± 0.0% w/w and 0.24 ± 0.0% w/w respectively. As and Pb were not present in PatoladiLepa. In conclusion, quality control parameters were established for PatoladiLepa for the first time.

Keywords: PatoladiLepa; Physico-chemical parameters; TLC fingerprint

Introduction

The craniofacial complex allows us to speak, smile, kiss, touch, smell, taste, chew, and swallow and to cry out in pain. It provides protection against microbial infections and environmental threats. Oral diseases restrict activities at school, work and home causing millions of school and work hours to be lost each year the world over. Moreover, the psychosocial impact of these diseases significantly diminishes quality of life [1]. An awareness of dental diseases and there treatments are reveal under medical topics in historical records. Dental diseases include dental caries, developmental defects of enamel, dental erosion and periodontal disease. The main cause of tooth loss is dental caries and it is commonly known as cavities or tooth decay [2,3]. In the presence of sweet and sticky foods, acid-producing bacteria living in the oral environment and thereby caused dental caries [3]. More than one fourth of world population is suffering from dental caries. It is a burden to governments of both developed and developing countries as they have to spend lot of money on treatments for dental caries [4]. Dental caries affects both men and women in all races, socio-economic status and every age group and it leading to pain and discomfort [5,6].

Medicinal plants have considerable potential against dental diseases including dental caries [7]. Since time immoral, Ayurvedic physicians have successfully treated dental caries by using herbal based treatments. PatoladiLepa, is one of the medicated pastes prescribed in Datta [8] as a remedy for dental caries. It consists of 7 medicinal plants, rock salt and honey (Table 1). In this study, we have made an attempt to assess the quality of the PatoladiLepa according to standard protocols.

Materials and Methods

Herbarium sheets were prepared for plant ingredients listed in Table 1, and authenticated by the Senior Scientist, Botany Division and Quality Assurance and Standardization Division at Bandaranayaks Memorial Ayurvedic Research Institute, Nawinna, Maharagama, Sri Lanka.

Preparation of PatoladiLepa

PatoladiLepa was prepared according to the method described in Sharangadhara Samhita. Preparation of PatoladiLepa was carried out at Pharmacy, Institute of Indigenous Medicine, University of Colombo, and Rajagiriya, Sri Lanka. In brief, all the purified raw materials of PatoladiLepa, except honey, were grounded individually by using the pulverizer. The powder was passed through the No. 180 size sieve and fine powder was obtained. Equal amount of each ingredient was mixed and ground on a grinding stone with a little quantity of honey, till it gets soft and spreads evenly. The manufactured paste was stored in an air tight sterilized containers.

Establishment of quality control parameters for PatoladiLepa

Organoleptic properties and physico-chemical parameters of PatoladiLepa were evaluated. In addition, confirmation of raw materials in PatoladiLepa and phytochemical screening were done.

Organoleptic properties

Color, smell and appearance of PatoladiLepa were evaluated.

Physico-chemical parameters

Parameters such as pH, total ash, water soluble ash, acid insoluble ash, heavy metals of PatoladiLepa were investigated using standard techniques.

pH value

Paste (5 g) was mixed with water (45 ml) by using magnetic stir (IKA C-MAG HS10 Digital) for 1 h and observed the pH at 29°C by using a pH meter (Consort C533).

Total ash, acid insoluble ash and water soluble ash

Amounts of total ash, acid insoluble ash and water soluble ash in the PatoladiLepa was determined according to WHO [9] guidelines.

***Corresponding author:** Dr. Kumaradharmasena LSP, Department of Shalya Shalakya, Institute of Indigenous Medicine, University of Colombo, Rajagiriya, Sri Lanka, Tel: +94 11 2 581835; E-mail: menuka@iti.lk

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