3.4 A Preliminary Study on Microbial Quality Standards of an Ayurvedic Compound Preparation "Thalisadee Choorana".

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ABSTRACT

Thalisadee choorana is a common Ayurvedic medical preparation widely used by all indigenous medical practitioners in Sri Lanka. It is used for respiratory tract ailments such as cough, common cold, bronchitis, asthmatic conditions and gastro intestinal disorders such as diarrhoea, vomiting, indigestion and loss of appetite. It contains mainly Pipernigram (Gammiris), *Piperlongum*(Thippili), *Abieswebbiana* (Thalispathra), *Cinnamum zylanicum* (Kurundupothu), *Elettaria repens*(Heenensal),Bamboo salt (Unakapuru) and sugar. All plant materials contain a large number of microorganisms. Some are inherent and some are contaminated during the process of harvesting and manufacturing process. Considering these facts, the World Health Assembly in its resolutions WHA-31:33(1978) 40:33(1987), 42:43(1989) has emphasized the need of ensuring the quality in regard to microbial content of the plant products. Hence this study was carried out to determine the microbial load of this product and the possible sterilization methods of reducing the microbial load. The effect of the method on the drug which reduces the microbial load of the drug also studied. Ten different samples of Thalisadee choorana were subjected to this study. 0.1gram of the drug sample was dissolved in 10 ml of sterile distilled water. (10^0). Using this solution 10^{-1}, 10^{-2} 10^{-3} dilutions were prepared. Routine sterilization procedures were carried out in all steps. Nutrient agar and Potato dextrose agar were used as general culture media. Pour plate technique and spread plate technique were used to detect the microbial count respectively. 0.1 ml of above dilutions was used on culture plates. Each plate was controlled by using another duplicate culture plate. Plates were sealed and kept under normal room temperature. Colony counts were taken after 24 hours and 72 hours for bacteria and fungi respectively. It was assumed that each colony was formed by a single organism. Same procedure was repeated three times. According to the W.H.A standard, aerobic bacteria up to 10^5/ gram, yeast and moulds up to 10^3/ gram are permitted The results of the above study indicate that the bacterial count was in between $3x10^6$ to $4x10^6$ /gram. These results indicate that the limits were exceeding on every sample. The following methods were tried to reduce the microbial load.100 grams of the above samples were subjected to (a) Heat treatment in a hot air oven at 80^0 C for 10 minuets for three consecutive days. (b) Ultra violet radiation at 256 wave length continuously for 24 hours. (c) Steam treatment under atmospheric pressure in a closed container for 10 minuets for three consecutive days. The study of microbial load was thereafter repeated.

The plates of the steamed samples were sterile up to 72 hours while the plate of other two methods does not show any reduction in microbial load. The volatile oil content by reflux method using Dead and Stark apparatus and the thin layer chromatographic (T.L.C) patterns of Ethanol extract and Water extracts using Silica gel GF 254 and G06 at the ratio of 1:3 with several solvent systems of both samples (Steamed and un steamed) were studied. The T.L.C. patterns and the volatile oil content of both samples were comparatively same .This preliminary study reveals that the steam treatment method is comparatively an effective method to reduce the microbial load of the above preparation. A detail study of the chemical compounds through other chromatography methods is needed to confirm this.