

EVALUATION OF PHOTOPROTECTIVE POTENTIAL OF SUNSCREEN FORMULATIONS PREPARED FROM *Leucas zeylanica* (Gatathumba) EXTRACT

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Introduction

The photoprotection is a term emerged in the modern-day science to alleviate the harmful effects caused by the UV radiation. This includes using of various photoprotective agents to reduce or avoid the detrimental effects of UV radiation. Topical application of sunscreens is the most prominent strategy to avoid the penetration of UV radiation into the skin. These sunscreen products contain active molecules which can absorb, reflect or scatter solar UV radiation. And these active molecules are mostly synthetic, which might cause adverse side effects such as allergies, hypersensitivity and oxidative damage to the skin. On the other hand the plant extracts have low side-effect profiles. Moreover Sri Lanka has a history of using indigenous medicinal plants for dermatological therapeutics as well as to improve skin complexion [1]. Therefore, it is worthwhile to assess the photoprotective capability of these plants in a systematic study. In our previous work, we studied the photoprotective potential of aqueous methanolic extract of *Leucas zeylanica*. In this study, we explore the photoprotective potential of sunscreen formulations prepared from a methanolic extract of the whole *L. zeylanica* plant.

Materials and Methods

Preparation of crude extract

The whole plants of *L. zeylanica* were collected, thoroughly washed and dried in shade for one week. The plant materials were authenticated by comparing the specimens at the National Herbarium, Royal Botanical Gardens Peradeniya, Sri Lanka and a voucher specimen (SG-2018-LZ-02) was deposited at the Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Sri Lanka. Then dried plant material was powdered using a domestic grinder. The powdered plant material (10-15g) was subsequently extracted using 300 mL of methanol, and the extract was evaporated into complete dryness in a rotary evaporator and the residue was kept at a hot air oven for 2 days at 40 °C.

Preparation of creams

Different concentrations of the extract (i.e. 25%, 50% and 75%) were incorporated into an aqueous cream base to produce three sunscreen products.

Determination of UV absorbance