

Chapter 65

Piperish Care

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Abstract

Skin is known as our principal barrier against our surroundings, that includes diverse microbial invasion. Each year, there are various current innovative methods to formulate products that are able to treat vast skin conditions. However, the unsubstantiated claims made by skincare companies on the effectiveness and stability of their products are still questionable, hence, consumers dealt with the dilemma on whether to opt for natural-based products or synthetic ones, for their daily use. The emergence of harsh chemicals such as triclosan, that can cause long-term carcinogenic effects, is one of the added reasons that persuaded customers to decide on purchasing alternative approach. The distressing concern had necessitated us to formulate ‘Piperish Care’ set, comprised of body wash, hair shampoo, and deodorant. These products contained natural ingredient obtained from ‘Kaduk’ leaves or scientifically known as ‘*Piper sarmentosum*’. The leaves extract had been tested and results had revealed that the dual effects of antibacterial and antifungal are the key components that will benefit the consumers. Besides, this set is deemed cost-effective and its formulation does not cause further irritation, especially for those who have sensitive skin. The research findings can also provide a basic guideline not only for the improvement of ‘*Piper sarmentosum*’ but also other potential plants. Therefore, ‘Piperish Care’ set is suitable for daily use that is able to assist in eliminating microbial skin infections.

Introduction

Human skin is the largest organ in the body and considered a principal barrier that protects us from our surroundings, that includes diverse microbial invasion. In addition, skin consisted of epidermis, dermis and subcutaneous layer (Kanitakis, 2002). Besides inhabiting normal flora, our skin is also regularly colonized by opportunistic pathogens with *Staphylococcus aureus* being one of the most common species that can be considered either commensal or can cause disease (Kozziel & Potempa, 2013). However, Gram-negative organism such as *Pseudomonas aeruginosa*, is responsible for cutaneous infections (Chiller *et al.*, 2001). Each year, there are various current innovative methods to formulate products that are able to treat vast skin conditions. Due to the unsubstantiated claims made by skincare companies on the effectiveness and stability of their products, consumers have to deal with the dilemma on whether to opt for natural-based products or synthetic ones, especially for their daily use. The emergence of harsh chemicals such as triclosan, that can be easily contained in our household and personal care products that had been widely known to form disinfection-by-products (DBPs) that can cause long-term carcinogenic effects (Lygina *et al.*, 2013). With the increasing awareness on prolonged exposure to the harmful chemicals, customers had since decided on purchasing alternative approach.

The distressing concern had necessitated us to develop ‘Piperish Care’ set, that consisted of body wash, hair shampoo, and deodorant. *Piper sarmentosum* (*P. sarmentosum*) was included as the principal ingredient for this product. In addition, *P. sarmentosum* Roxb. belongs to the family Piperaceae (Chiang & Wong, 2014) and can be easily grown in tropical and subtropical countries (Hussain *et al.*, 2009). Due to the various pharmacological activities such as antibacterial (Masuda *et al.*, 1991), anti-termite (Chieng *et al.*, 2008) and antioxidant (Hutadilok *et al.*, 2006), this plant has untapped the market potential for the natural-based product.

Content

The leaves of the plant were collected and processed based on Syed Ab Rahman *et al.* (2016) using methanol-based extraction. Then, the disc diffusion method was performed on three common pathogens that include *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Candida albicans*. The results were based on the diameter of inhibition zone via measurement in millimeters (mm). Subsequently, Minimum Inhibitory Concentration (MIC) tests had also been incorporated. The outcome was determined whether the wells appeared clear or turbid through the microdilution broth method. The development process also involves the screening of phytochemical properties based on the reaction of colour changes or precipitation by the reagents (Banu & Cathrine, 2015). The tests had revealed the presence of glycoside, flavonoids, terpenoids, alkaloids, and phenolics. Meanwhile, toxicity tests were also carried out to identify potential metals contained in the extract. After several laboratory findings, the extract was then developed into body wash, hair shampoo, and deodorant. The added ingredients were also derived from other natural fruits and plants. The product is also deemed cost-effective and its formulation does not cause further irritation, especially for those who have sensitive skin.

Conclusion

In summary, ‘Piperish Care’ set is suitable for daily use as it is able to assist in eliminating potential microbial skin infections, throughout the body. Customers can also contribute to the sustainable environment by purchasing natural products as fewer chemicals are released into the surroundings. Nonetheless, the research findings will provide a basic guideline not only for the improvement of ‘*Piper sarmentosum*’ but also other potential plants.

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