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THE CHEMICAL ANALYSIS OF *Caulerpa lentillifera* AND *Curcuma longa* CREAM FOR DULL SKIN TREATMENT

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ABSTRACT

THE CHEMICAL ANALYSIS OF *Caulerpa lentillifera* AND *Curcuma longa* CREAM FOR DULL SKIN TREATMENT

Caulerpa lentillifera sp. (sea grapes) and *Curcuma longa sp*. (turmeric) were the key components in the production of dull skin cream. Sea grapes and turmeric have bioactive compounds that are useful not only in the food industry but also in the cosmetics and drug industries. Therefore, in this study, the chemical and biological qualities of sea grapes and turmeric were evaluated as potential new constituents in dull skin cream. Maceration and Soxhlet extraction were used, respectively, to extract the bioactive components of sea grapes and turmeric. The corresponding percentage yields of sea grapes and turmeric were 29.14% and 23.23%. Through GC-MS analysis, the presence of the phenolic compound 2,4-Di-tert-butyphenol was determined to be 96% quality. The total phenolic content (TPC) values for sea grapes and turmeric are comparable: 0.06738±0.042 mg GAE/g and 0.08933±0.057 mg GAE/g, respectively. The antioxidant capacity IC_{50} values for extracts of sea grapes and turmeric were 84.93 ppm and 625.51 ppm, respectively. *E. coli* and *S. aureus* bacteria were used to evaluate the antibacterial properties of sea grapes and turmeric extract. In all concentrations examined, both extracts were found to be inhibited. According to the heavy metal analysis, most existing metals are below the maximum concentration level for cosmetic products. HPLC was performed to evaluate the presence of vitamin C and vitamin E in sea grapes and turmeric extracts, and it was determined that the retention times of standard vitamin C and vitamin E were comparable in the sea grapes and turmeric extracts. This shows that both extracts contain antioxidant compounds. The extracts were then used in the formulation of the dull skin cream treatment. The pH of the developed cream (Formulation I) is 6.81, which is suitable for human skin. In addition, 25 of the respondents tested negative for skin allergies, as assessed by rashes, itching, dry, swollen skin, shortness of breath, and skin irritation.

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