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Preparation of herbal-chemical antimicrobial compound with high efficiency and minimum side effect

Ilnaz Rashidi[3], Hamid Reza Ahmadi Ashtiani[1, 2], Hossein Rastegar[1] and Amir Houshang Ehsani[4]

[1]Cosmetics & Hygienic Products Research Center, Iran
[2]Islamic Azad University, Iran
[3]Payamnoor University, Iran
[4]Tehran University of medical science, Iran

The use of preservatives in shampoo and tonic is inevitable, since they contain a high proportion of organic matters and are susceptible to bacterial and fungal infections, but the quantity of preservative can be reached a minimum by using the antimicrobial effects of herbal extracts. The extracts of some plants contain polyphenolic compounds that their antimicrobial and anti-inflammatory effect is confirmed. In the present study, the antimicrobial activities of a compound containing 19 herbal extracts, all rich in polyphenols which was confirmed by HPLC test and %0.01 (the minimum scale, 5 times lower than the scale confirmed by manufacturer company) of preservative (5-chloro-2-methyl-2H-isothiazol-3-one/2-methyl-2H-isothiazol-3-one) were investigated against four bacterial and fungal species (Staphylococcus aureus, Candida albicans, Pseudomonas aeruginosa, Aspergillus niger). 19 herbal extracts were used and HPLC test has been done to prove the phenolic compounds in extracts, then they were compounded with each other in equal percent and 0.01% (the minimum amount of preservative CMIT/ MIT) was added, 20 gr of the compound was poured into 4 test tubes and each test tube was separately inseminated by one colony of 2 types of bacteria and fungi, then the test tubes were incubated at a temperature of 25˚C. After 0 hour, 7 days, 14 days, 28 days, 1 gr from each test tube was taken separately. Samples which were inoculated with bacteria and fungi were cultured on the Tryptone Soya Agar and Sabouraud Dextrose Agar, respectively. There were a considerable number of colonies in plates related to 0 hour, but in plates related to 7, 14 and 28 days the colonies were significantly decreased. The results obtained suggest that the herbal extracts contain active antimicrobial compounds which can be appropriate replacements for chemical preservatives.

Biography

Ilnaz Rashidi received her bachelor's degree in genetics from Iran's Esfahan University when she was 25 years old. She has got her MA degree in biochemistry from Payame Noor University of Iran. She has passed her MA thesis in Iran's National Institute of genetic engineering.

rashidi_elnaz@yahoo.com