

## **STUDIES ON THE TREATMENT AND PREVENTION OF DANDRUFF**

Nemchenko A.S., Mishchenko V.I., Vinnyk O.V., Malkhi Iman

National University of Pharmacy, Kharkiv, Ukraine

[economica@ukr.net](mailto:economica@ukr.net)

Dandruff only affects the scalp and is characterized by itchy, flaky skin that is not visibly inflamed. Dandruff is most prevalent between adolescence and middle age, when the sebaceous organ is most active. There are many reasons why people have dandruff, but *Malassezia furfur* seems to be the main one. Additionally, the corneal layer of the scalp is harmed by bacterial growth there.

The aim of our study was the means that are used to treat dandruff. The object of analysis is the anti-dandruff market. Subject of study: literary sources, publications in scientific and practical publications, information from the official websites of manufacturers and medical cosmetics. Analysis methods: retrospective, system analysis, comparison method.

As a result of the analysis of the range of anti-dandruff products, it was found that most therapeutic and prophylactic products contain a whole range of active ingredients, the action of which is aimed at improving the condition of the epidermal barrier, cleansing the scalp and hair from scales, reducing the oiliness of the skin and hair, reducing itching and skin sensitivity to irritants. In the treatment of dandruff, 5 types of shampoos are used: Fluocinolone Shampoos, Ketoconazole Shampoos, Selenium Sulfide Shampoos, Shampoos Containing Salicylic Acid, Tar-based Shampoos, Pyrithione Zinc Shampoos.

According to marketing firm research «MordorIntelligence» the COVID-19 pandemic created a short-term demand shift for more essential products, with consumers spending less on personal grooming products, such as shampoo. For instance, Procter & Gamble witnessed a sales drop of around 1% in its personal grooming product segment in 2020 compared to 2019. The closure of many retail

outlets resulted in a negative growth rate, coupled with the consumers leaning more toward Do-it-Yourself at-home products. However, the shift toward online channels boosted sales.

A firm «MordorIntelligence» predicts over the medium term, anti-dandruff shampoo is anticipated to be the fastest-growing segment within the shampoo market, driven by the increased hair loss due to changing lifestyles, the convenience of using these products, poor hygiene conditions, and exposure to the environment with rising pollution levels.

Some of the major players operating in the dandruff treatment market are: AstraZeneca (U.K.); Johnson & Johnson Private Limited (U.S.); Glenmark Pharmaceuticals Limited (India); Cipla Inc. (U.S.); L'Oreal (France); Procter & Gamble (U.S.); Unilever (U.K.); Alliance Pharma PLC (U.K.); Arcadia Consumer Healthcare (U.S.); Vyome Therapeutics Inc. (India); ACTICON LIFE SCIENCES (India); JOHN PAUL MITCHELL SYSTEMS (U.S.); JASÖN Natural Products, Inc. (U.S.); Nikole Kozemetics (India); DABUR (India); Kao Corporation (Japan); Philip Kingsley Products Ltd. (U.K.).

Bridge Market Research analyses that the dandruff treatment market, which was USD 8,642.94 million in 2022, is expected to reach USD 14,143.64 million by 2030, at a CAGR of 6.35% during the forecast period 2023 to 2030.

With rising awareness about the side effects of chemical formulations and evolving consumer needs for shampoo products comprising natural ingredients, manufacturers are expanding their product portfolios and placing themselves in a highly competitive natural shampoo market in the dandruff treatment. For example, in 2020, Herbal Essences launched its Aloe Collection with sustainably and responsibly sourced aloe vera from Mexico. Shampoos with natural, silicone-free, paraben-free, and sulfate-free formulas with 80-100% naturally-derived ingredients are trending in the market. Consumer awareness about products and services and their benefits through digital media and other sources is also boosting the segment's growth.

This is due to the emergence of new products for the treatment of dandruff on the market. An example of this – in 2022, REIN MADE PTY LTD (NSW, Australia) announced the release of the most fashionable anti-dandruff shampoo. For discerning clients who value performance and beauty, REIN is launching an anti-dandruff shampoo and conditioner (<https://reinmade.com/>.) REIN blends anti-dandruff ingredients with natural extracts and oils to create a luxurious and moisturising product with an energising maritime flavor inspired by one of their favorite aromas. REIN is a discreet anti-dandruff shampoo made for discerning consumers who value both performance and aesthetics.

It should be noted that companies are introducing a whole line to the cosmetic market, thereby providing a comprehensive treatment of the problem:

- 1% Piroctone Olamine and Zinc Gluconate to cleanse the scalp. Menthol and Fucus Vesiculosus Extract combined with Mandarin and Cedarwood essential oils to stimulate, strengthen and hydrate. 500 ml each Average cost 68 USD;
- Mandarin and Cedarwood essential oils to hydrate. Almond Oil and Shea Butter to nourish. Hydrolyzed Wheat Protein for growth, volume and strength. 500ml. Average cost 68 USD.
- REIN Shampoo: 1% Piroctone Olamine and Zinc Gluconate to cleanse the scalp. Menthol and Fucus Vesiculosus Extract combined with Mandarin and Cedarwood essential oils to stimulate, strengthen and hydrate; Average cost 124 USD;
- REIN Conditioner: Mandarin and Cedarwood essential oils to hydrate. Almond Oil and Shea Butter to nourish. Hydrolyzed Wheat Protein for growth, volume and strength. 500ml each. Average cost 124 USD.

Thus, the problem of dandruff treatment is both cosmetic and medical, and therefore requires a comprehensive scientifically based approach to its solution. In this regard, the analysis of drugs for the treatment of dandruff is a topical issue that requires ongoing research.