Ayurvedic Hair Science: A Neglected Field in Need of Immediate Research Attention

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Ayurveda, the traditional Indian system of medicine with roots extending over 3,000 years, has long offered holistic insights into bodily health, including the physiology and pathology of hair. Despite the discipline's extensive textual and experiential documentation, Ayurvedic hair science has received little formal attention in modern clinical research. This neglect is surprising given the global burden of hair and scalp disorders and the rising interest in botanical and integrative approaches to dermatology.

Ayurvedic literature describes hair under the domain of keshya chikitsa (hair therapy), grounded in the principles of dosha balance and dhatu nourishment. Disorders such as hair loss (khalitya), premature greying (palitya), and scalp conditions are explained in terms of imbalances in pitta and vata, impaired rasa and rakta dhatus, and poor digestive fire (agni).[(1)] Therapies include both internal and external treatments—ranging from personalized dietary regimens and herbal decoctions (kwathas) to medicated oils (tailas) and therapeutic massages.

Among the most commonly cited botanicals are Bhringaraja (Eclipta alba), Amla (Emblica officinalis), Brahmi (Bacopa monnieri), and Jatamansi (Nardostachys jatamansi), all believed to support hair growth, strengthen roots, and delay greying.[(2)] Traditional oil preparations such as Neelibhringadi taila and Keshya taila are still widely used in South Asia and are commercially available under the Ayurvedic pharmacopeia. However, the evidence base for these therapies remains largely anecdotal or based on historical texts rather than rigorously designed clinical studies.

This gap is concerning when viewed against the background of modern trichological challenges. Conditions such as androgenetic alopecia, telogen effluvium, and traction alopecia are increasing across genders and age groups, often exacerbated by environmental stressors, poor nutrition, and hormonal imbalances.[(3)] Available allopathic options—such as minoxidil and finasteride—while somewhat effective, are limited by variable results and side effect profiles.[(4)] Hence, there is a clear unmet need for safer, evidence-based, and long-term alternatives.

The global hair care market, valued at over USD 90 billion, increasingly reflects consumer preferences for "natural," "organic," and "herbal" products.[(5)] Yet, a large proportion of products labeled "Ayurvedic" are not standardized, lack clinically validated formulations, and are not subjected to pharmacovigilance or peer-reviewed efficacy trials.[(6)] This raises ethical and safety concerns, particularly when such products are used chronically or in vulnerable populations like children and pregnant women.

Some preliminary research has shown promise. For instance, studies have suggested that Eclipta alba promotes hair growth in animal models via mechanisms involving the Wnt/β-catenin signaling pathway.[(7)] Likewise, Emblica officinalis has demonstrated antioxidant and collagen-enhancing effects in vitro.[(8)] However, translation to human models remains limited, with few randomized controlled trials, poor methodological quality, and small sample sizes. There is a critical need for pharmacognostic standardization, dose-ranging studies, and phase-based clinical trials to validate these ancient remedies under modern biomedical standards.

Ayurvedic dermatology has long been marginalized in academic dermatological curricula and research funding streams. It is time for a paradigm shift. Collaborative frameworks involving Ayurvedic practitioners, pharmacologists, dermatologists, and molecular biologists are essential to decode traditional knowledge using contemporary scientific tools. Initiatives by the WHO on traditional medicine integration and India's Ministry of AYUSH provide frameworks that can be leveraged to prioritize such research.[(9)]

Conclusion : Ayurvedic hair science is a rich but neglected field that holds therapeutic and commercial potential. Bridging the gap between tradition and evidence will require not only scientific curiosity but institutional support and regulatory clarity. This editorial calls for urgent research attention to Ayurvedic approaches in hair health—not as a replacement for modern medicine, but as a complementary system that can enrich the dermatological armamentarium for hair and scalp disorders.

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