

# Natural Antifungal Agents: A Review on the Efficacy of Botanicals against Skin Fungal Infections

Miss. Nutan Vasantrao Kaurwar, Dr. Pankaj M. Pimpalshende, Dr. Parag S Chaware

Hi-Tech College of Pharmacy, Morwa, Chandrapur, India

**Abstract:** Fungal skin infections, caused by dermatophytes, yeasts, and molds, pose a significant global health challenge, often requiring long-term treatment. Conventional antifungal therapies, including azoles, polyenes, and echinocandins, are effective but associated with toxicity, resistance development, and high costs. In contrast, natural antifungal agents derived from botanical sources offer promising alternatives with broad-spectrum activity, minimal side effects, and lower resistance potential. This review explores the efficacy of botanical extracts and essential oils in combating fungal infections, highlighting their mechanisms of action, such as ergosterol interference, enzyme inhibition, biofilm disruption, and immune modulation. Key medicinal plants with potent antifungal activity include Tea Tree (*Melaleuca alternifolia*), Neem (*Azadirachta indica*), Turmeric (*Curcuma longa*), Garlic (*Allium sativum*), and Clove (*Syzygium aromaticum*), among others. Various formulations, including herbal gels, creams, and polyherbal combinations, enhance the therapeutic effects of these plant-based compounds. Despite their advantages, challenges related to standardization, stability, and bioavailability hinder the widespread clinical application of botanical antifungals. Future research should focus on nanoformulation techniques, synergistic polyherbal blends, and clinical trials to establish plant-based antifungal therapies as viable alternatives to synthetic drugs.

**Keywords:** Natural antifungal agents, botanical extracts, skin fungal infections, essential oils, polyherbal formulations, ergosterol inhibition, biofilm disruption, phytochemicals

