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Bangladeshi Medicinal Plants with Anthelmintic Potential: A Scoping Review

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Abstract

Helminth infections, particularly those caused by soil-transmitted helminths (STHs), pose a substantial global health threat, affecting over 1.5 billion individuals, particularly in tropical and subtropical regions. These infections are common in impoverished communities, particularly in rural areas and urban slums of Bangladesh, which lack adequate sanitation systems. These infections impose a significant economic burden on developing countries by reducing livestock productivity and deteriorating animal health. The rise of anthelmintic resistance to conventional anthelmintics, particularly in livestock, and the potential for its spread to humans underscore the urgent need for alternative therapies. This review aims to explore the potential of medicinal plants in Bangladesh as alternative anthelmintic treatments by examining studies conducted over the past two decades, focusing on species native to the country. A comprehensive literature search was conducted across various databases, including PubMed and search engines like Google Scholar, to identify only full-length, English-language articles. The review identified fifty-six medicinal plants belonging to thirty-six different families, with Fabaceae (seven species), being the most diverse followed by Lamiaceae (four species), and Apocynaceae, Combretaceae, and Cucurbitaceae (three species each). The conservation status assessment revealed 29 plants classified as Least Concern (LC), 24 as Not Evaluated (NE), and 3 as Data Deficient (DD). A thorough literature review resulted in the development of a detailed table summarizing diverse anthelmintic evaluations. This table provides data on extract types, with aqueous and alcoholic extracts being the most prevalent, and testing methods, which include both in vitro and in vivo assays against parasitic and non-parasitic nematodes. Furthermore, it addresses assessment parameters such as egg hatch inhibition, larval migration inhibition, and paralysis induction. The review highlights the growing importance of Bangladeshi medicinal plants as alternative medications in the face of rising anthelmintic resistance. Further studies should focus on the extracts, fractions, and compounds derived from these plants, evaluating their efficacy as anthelmintic agents for use in livestock, companion animals, and humans. As traditional anthelmintics become ineffective due to resistance, medicinal plants offer a promising alternative, highlighting the need to explore their potential in humans, animals, and livestock.

