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Therapeutic Potentials of NIGELLA SATIVA L. Extract in Bridging the Gap of Larval Development and Urinary Schistosomiasis Transmission

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Abstract

Background and Aims
Schistosomiasis is a neglected tropical disease that affects mainly the health of school-aged children in endemic communities. This study determined the therapeutic effect of Nigella sativa extract on egg viability, multiplication, and cercaria infectivity of Schistosoma haematobium lifecycle stages in South-Eastern Nigeria.

Methods
The study was conducted using standard parasitological and malacological techniques. Snail intermediate hosts were collected from surrounding water bodies and subjected to cercarial shedding to assess their viability and transmission potential. Nigella sativa seed extract was applied at varying lethal concentrations to inhibit further transmission from the snail hosts. In addition, clinical samples were collected from pupils who frequented the same water bodies to determine infection status and assess seasonal prevalence.

Results
The egg viability assay for Schistosoma haematobium exposed to Nigella sativa seed extract showed a progressive increase in egg calcification, rising from 38.88% at 30 minutes to 94.37% after 4 hours of exposure. Analysis of variance (ANOVA) indicated no statistically significant differences ($P > 0.05$) in egg viability, calcification, or survival across the different exposure times. Similar effects were observed following exposure of cercariae to N. sativa seed extract, where a clear time-dependent pattern was evident, characterized by increased cercarial mortality and reduced survival with prolonged exposure.

Conclusion
The present findings on the therapeutic activity of Nigella sativa seed extract suggest that this plant has the potential to inhibit schistosome larval development and disrupt the transmission of Urinary Schistosomiasis.