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Antifungal effect of boron compounds against *Neoscytalidium dimidiatum*

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ABSTRACT

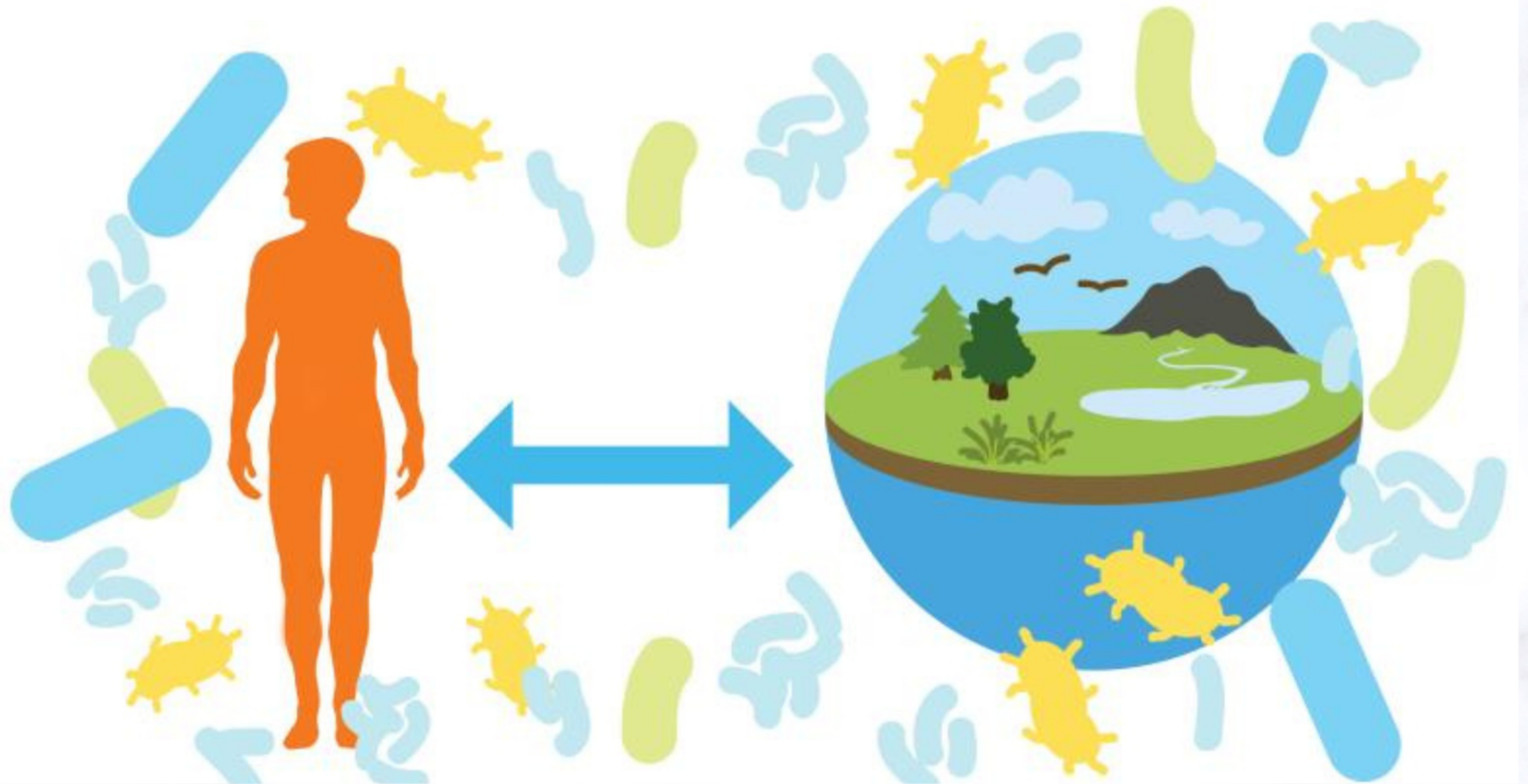
Neoscytalidium dimidiatum has been recently identified as the agent responsible for canker, dieback, shoot blight, and root rot on different hosts in Türkiye. In this study, we evaluated the inhibitory effect of boric acid (H_3BO_3), three borates [disodium octaborate tetrahydrate ($Na_2B_8O_{13} \cdot 4H_2O$), disodium tetraborate decahydrate ($Na_2B_4O_7 \cdot 10H_2O$) and disodium tetraborate ($Na_2B_4O_7$)] on the mycelial growth, germ tube elongation and conidial germination of *N. dimidiatum*. The antifungal effects of the boron compounds were investigated at 0.125, 0.25, 0.5, 1.0 and 2.0% (w/v) concentrations. The differences observed between the inhibitory effects of boron compounds on the parameters were found to be significantly important at $P < 0.05$. The 0.5% concentration of disodium tetraborate decahydrate and disodium octaborate tetrahydrate completely inhibited the fungus, whereas other salts did not. Disodium tetraborate decahydrate and disodium octaborate tetrahydrate completely inhibited three parameters at 0.5% and higher concentrations. However, boric acid and disodium tetraborate were able to completely inhibit investigated factors of *N. dimidiatum* at 2.0% and 1.0% concentration, respectively. Disodium tetraborate and boric acid at 0.5% concentration decreased germ tube elongation and conidia germination of the fungus by 94.97%-63.57%, 59.33%-51.26%, respectively. The effectiveness of the 0.5% concentration on conidial germination was also similar in both salts at $P < 0.05$. However, disodium tetraborate inhibited germ tube elongation more effectively than boric acid. The minimum inhibition concentration (MIC) values of the four boron compounds also varied between 0.5% and 2.0% concentrations. The boron compounds in this study could be potential agents to manage *N. dimidiatum*.

Key words: Boron compounds, inhibitory effect, *Neoscytalidium dimidiatum*



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