Turkish Journal

of

Agriculture and Forestry

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Turkish Journal of Agriculture and Forestry

In Vitro Studies on Some Natural Beverages as Botanical Pesticides against Erwinia amylovora and Curtobacterium flaccumfaciensis subsp. poinsettiae

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Abstract: Several tannin-rich beverages were tested for their antibacterial activity against 2 important phytopathogenic bacteria, Erwinia amylovora and Curtobacterium flacumfaciensis subsp. poinsettiae. Black tea (9.5, 19 and 38 g l^{-1}), green tea (9.5, 19 and 38 g l^{-1}) and tannic acid (0.2, 0.4 and 0.8 g l^{-1}) inhibited the growth of E. amylovora and C. f. subsp. poinsettiae. Coffee (8.75, 17.5 and 35 g l^{-1}) and cocoa (8.75, 17.5 and 35 g l^{-1}) did not display any inhibitory effect on the growth of bacterial cultures. The numbers of colony forming units (CFUs) of E. amylovora in the presence of black tea, and of C. f. subsp. poinsettiae in the presence of tannic acid were lower than their control counterparts. Over prolonged incubation the inhibitory effect of extracts on the number of CFUs was diminished. The results suggest that tea extract might be a safe agricultural chemical against some important plant diseases, play a vital role in meeting the demand for organically produced plants and alleviate some environmental problems associated with the use of synthetic chemicals.

Key Words: biological control, botanical pesticide, environmental pollution, health risk, organic farming

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Turk. J. Agric. For., **28**, (2004), 57-61.
Full text: pdf
Other articles published in the same issue: Turk. J. Agric. For.,vol.28,iss.1.