The Effect of Three *Aspergillus* Species on Seed Germination and Seedling Growth of Ten Vegetable Crop Varieties

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Seed-borne pathogens are known to reduce seed germination and seedling development of crops, resulting in heavy economic losses. This study was conducted to determine the effect of seed-borne fungi *Aspergillus flavus*, *Aspergillus fumigatus* and *Aspergillus nigeron* seed germination and early seedling growth of ten vegetable crop varieties, bitter gourd(MC-43), brinjal(SM-164), capsicum(CA-8), cucumber(Kalpitiya white), okra(Haritha), pumpkin(Meemini), radish(Beeralu), snake gourd(TA-2), spinach(Yoda), and tomato(Rajitha). Four replicates of 100 surface sterilized seeds each were germinated at 25 ^{0}C under 12/12 hour light/dark cycles for 14 days in sterilized clear plastic boxes filled with autoclaved silica sand, inoculated with 5 ml of fungal spore suspension (10^{5} CFU/mL). Sterilized distilled water was used as the control and all the experiments were duplicated. Time to reach 50% seed germination (G50), final germination percentage and shoot and root lengths of seedlings were measured after 14 days. *A. flavus, A. fumigatus* and A. *niger* (a) significantly reduced seed germination percentages by 28-46% in eight crops other than okra and tomato ($P<0.05$), (b) significantly increased G50 by 3-14 days in eight crops except in bitter gourd and tomato ($P<0.05$), and (c) significantly reduced root lengths by 2-20 cm and shoot lengths by 4-20 cm in all ten crop varieties ($P<0.05$). The ungerminated seeds and affected seedlings were rotten and infested by fungi. The level of impact by the fungi varied between the crop varieties. Thus, the three *Aspergillus* species tested exert negative impacts on seed germination and seedling growth of all the ten crop species tested.

Keywords: Aspergillus spp., germination percentage, seed-borne, seed pathogens