

Etiology of and Effect of Environmental Factors on Damping-Off and Stem Rot of Cowpea in Benin

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Damping-off and stem rot are two types of diseases affecting cowpea (*Vigna unguiculata* (L.) Walp.) in the Ouémé Valley, Benin. Of the fungal species isolated from diseased plants in the field during a 2-year experiment (2001 and 2002), *Sclerotium rolfsii* Sacc. was found to be solely responsible for these diseases. The disease incidence decreased with increasing distance of the field from the river. Measurement of *S. rolfsii* initial inoculum, soil moisture and disease incidence in cowpea field plots revealed a positive correlation among these parameters. The multiple regression analysis showed that the disease incidence increase was 0.4% for one unit increase in soil moisture percent, whereas the disease incidence increase was 19.8% for one unit increase of the density of initial inoculum of the pathogen. This is the first comprehensive study of the effects of environmental factors on the incidence of cowpea damping-off and stem rot caused by *S. rolfsii* in Benin, and shows that the density of the initial inoculum is the main contributing factor of the disease in the field in the Ouémé Valley.

KEY WORDS: Initial inoculum; soil moisture; susceptibility; temperature; *Vigna unguiculata*.

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