

TITLE: PATHOGENICITY AND SEVERITY OF *Rhizoctonia solani* IN COWPEA

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ABSTRACT

In the soil, it inhabits a diversity of microorganisms that can present different alimentary behaviors, as saprophyte, autotrophs, phytophagous or even, more of an alimentary habit. *Rhizoctonia solani* is one of the classic examples of soil-borne fungus that behaves as facultative parasites, that is, in the absence of a host, it survives saprophytically in the soil for a long time, but in the presence of a susceptible host, it may present phytopathogenic behavior. Phytopathogens of this nature are difficult to handle phytosanitary, especially since they can attack a wide range of hosts, including cowpea (*Vigna unguiculata* L.) Walp), the main cultivation of family farming in the Brazilian Northeast. The present study aimed to characterize of *R. solani* strains as to their pathogenic activity and severity in cowpea. Twenty strains of *R. solani* were cultivated seven days in Petri dishes containing Potato-dextrose-agar (PDA) medium at $28 \pm 2^\circ\text{C}$ and 12 hours photoperiod. Fragments of cultures PDA medium containing fungal structure ($\varnothing = 5 \text{ mm}$) were transferred to packages containing 25g of sterile rice substrate and the infested substrate incubated for 10 days at $28 \pm 2^\circ\text{C}$ and 12 h photoperiod. Cowpea seeds cv. BRS Tucumaque were deposited in pots of 300 mL capacity, containing sterile soil (2 seed/pot), covered by a thin layer of soil and, on this layer, added rice grains colonized by *R. solani* and another layer of soil on the substrate (2 grains/pit). In the control treatment, it was used as a substrate of sterile rice in substitution to the colonized one. The vessels were kept in a completely randomized blockhouse (8 replicates/treatment) and, after fifteen days, the incidence of rhizoctoniosis was evaluated and the severity index (SI) was inferred, based on the diagrammatic scale proposed by Goulart (2018), by the McKinney Index. Of the twenty isolates evaluated, seven were not pathogenic, and among the three that were capable of causing disease; nine were of low virulence ($\text{SI} < 1.96$); three isolates of medium virulence ($1.96 < \text{SI} < 3.3$) and only one isolate were classified as having severity ($\text{SI} > 3.3$). Although isolated from the same species, *R. solani* presents great epidemiological variability, which may lead to different levels of damage to bean cowpea cultivation. Studies of severity and pathogenicity are important to direct control methods in the phytosanitary management system.

Keywords: Epidemiology; Rhizoctoniosis; *Vigna unguiculata*.

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