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Pathogenicity of *Aphelenchoides besseyi* populations from rice (*Oryza sativa*) to soybean (*Glycine max*) plants.

Angélica Halfen¹ (angelicahalfe.agronomia@gmail.com), Luciany Favoreto², Mauricio Conrado Meyer³, Andressa Cristina Machado⁴, Santino Aleandro Silva⁴, Patrícia Pricilla França⁵, Rafaela Loreto⁵, Cesar Gomes⁶

¹ Plant Protection Post Graduation Program, Universidade Federal de Pelotas, Pelotas, RS, Brazil; ² Nematology lab, Epamig, Londrina, PR, Brazil; ³ Phytopathology and Nematology Lab, Embrapa Soja, Londrina, PR, Brazil; ⁴ Nematology lab, Instituto Agrônomo do Paraná, Londrina, PR, Brazil; ⁵ Nematology lab, Unifil- Centro Universitário Filadélfia, Londrina, PR, Brazil; ⁶ Phytopathology and Nematology Lab, Embrapa Clima Temperado, Pelotas, RS, Brazil

The occurrence of green stem disturbance (Soja Louca II) on soybean crops was first detected in the central-north region of Brazil about fifteen years ago. However, the disease etiology was associated with *Aphelenchoides besseyi* only in 2017. The problems from this complex disease on soybean have increased in tropical regions characterized by a hot and rainy climate, resulting in significant yield losses especially in Pará, Maranhão, Mato Grosso and Tocantins states. In the extreme south of Brazil, soybean has been used systematically in crop rotation with irrigated rice in which is a good host of the white tip nematode (*A. besseyi*), a pathogen that has been found in this region frequently. Therefore, the objective of this study was to evaluate the pathogenicity of different populations of *A. besseyi* from rice and soybean. Three nematode populations from rice and just one from soybean were previously identified based on morphological and morphometric parameters. Subsequently these populations were characterized by PCR (Polymerase Chain Reaction) using species-specific primers for *A. besseyi*. In order to establish an assay at greenhouse conditions, firstly all nematode populations were multiplied *in vitro* and 50 days later each one was inoculated into 'BRS 284' soybean plants using two levels of inoculum (600 and 1200 nematodes/plant). Non-inoculated soybean plants were used as control. Fifty days after inoculation, it was observed that all *A. besseyi* populations multiplied in soybeans and caused symptoms of the green stem syndrome (leaves presenting sheathing, less hairiness, intense green color and thinning in the leaf blade). In addition, there was a reduction in the fresh mass of the aerial part of the inoculated plants compared to the control independently of nematode population. There was a significant interaction between populations and levels of inoculum for the reproduction factor (RF) ($P \leq 0.05$), where lower inoculum densities resulted in higher RF values. In general, the populations of *A. besseyi* from rice presented higher reproduction indexes. In this sense, areas of rice infested with this nematode and located in hot and rainy regions can be sources of inoculum for the manifestation of green stem syndrome in soybeans.

Keywords: *Aphelenchoides besseyi* - Soybean - Rice - Soja Louca II - Foliar retention.