Histopathology of Andean Potato (Solanum tuberosum Andigenum group) varieties parasitized by the false root-knot nematode, Nacobbus aberrans

M. del C. Tordablea, A. J. Andradeb, M. E. Doucetc and P. Laxc*

^aMorfología Vegetal, Facultad de Ciencias Exactas, Físico-Químicas y Naturales, Universidad Nacional de Río Cuarto, Estafeta Postal 9, 5800 Río Cuarto, Córdoba, Argentina

Instituto de Biología de la Altura, Universidad Nacional de Jujuy, Av. Bolivia 1661, 4600 San Salvador de Jujuy, Argentina Instituto de Diversidad y Ecología Animal – CONICET-UNC, Centro de Zoología Aplicada, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Córdoba, Rondeau 798, 5000 Córdoba, Argentina

*e-mail: laxpaola@gmail.com

Received: 22 November, 2016 – Accepted: 29 May, 2017 – Distributed: 30 November, 2018 (With 3 figures)

Abstract

Landraces of the *Solanum tuberosum* Andigenum group are abundant and diverse. They are a valuable genetic resource possessing resistance to pests, diseases, and environmental stresses. In the Andean region, populations of the false root-knot nematode *Nacobbus aberrans* became specialized to infect native potatoes, being one of the major limiting factors affecting this crop. A better understanding of the host plant-parasite interactions is important in order to select tolerant or resistant plants to be included in management programs. Despite the close of association of *N. aberrans* with potato, and the great diversity of the *S. tuberosum* Andigenum group, few histopathological studies have been conducted. The aim of this work was to analyze histological alterations induced by different Argentine populations of the nematode in naturally infested roots of four Andean potato varieties (Collareja, Negra Imilla, Ojo de Señorita and Colorada). All the varieties showed hyperplastic tissue in the central zone of galls, where syncytia developed in close association with the nematode female. Syncytia were composed of modified hyperplastic tissue and parenchyma xylem cells. The results showed differences among varieties in their response to nematode populations, with Ojo de Señorita and Negra Imilla being the most susceptible ones. This study is the first describing histopathological alterations induced by *N. aberrans* in susceptible Andean potato landraces.

Keywords: Argentina, histopathological alterations, plant-parasitic nematode, potato, syncytia.