CAPSAICINOIDS AND VITAMIN C IN HABANERO CHILI (*Capsicum chinense)* CULTIVATED IN DIFFERENT TYPES OF SOILS FROM YUCATAN MEXICO

Rodríguez-Buenfil Ingrid*, López-Domínguez Cindy, Morozova Ksenia, Schampicchio Matteo and Ramírez-Sucre Manuel.

[1] *Center for Research and Assistance in Technology and Design of the State of Jalisco AC (CIATEJ), Mexico*
[2] *Free University of Bolzano Italy*

Abstract

Habanero pepper (*Capsicum chinense*) is the main horticultural specie commercially exploited in the Yucatan Peninsula in Mexico, in addition to being a symbol of pungency, it possesses characteristics of commercial interest due to its high contents of capsaicinoids accumulated in the fruit. The contents of these compounds are believed to vary in conditions of hydric or water stress. The fruits of *Capsicum chinense* plants grown in the Yucatan Peninsula have its appellation of origin based on their unique characteristics, which are suggested to be due to the particularities of the soils in which they are cultivated. For its cultivation three main types of soil are used: K'áankablu'um (red soils), Box lu'um (black soils) or ch'ich 'lu'um (brown soils). The interaction of the soil with the plant affects the development of the fruit, since the amount of nutrients, water and salinity in the soil has a significant effect on the quantity and size of fruit, and in the content of some secondary metabolites with the same factors. The objective of the present work was to determine the content of capsaicinoids and vitamin C in habanero pepper grown in different types of soils and to evaluate the relationship of these contents with the state of maturity of the pepper fruit. There were significant differences in both, the content of capsaicinoids and vitamin C due to different types of soil and the degree of ripeness of the fruit, the highest content of capsaicinoids were obtained with the orange ripened pepper (O) and red soil (figure 1). For the content of vitamin C, the highest amount was found in the red soil in the orange ripened pepper (O) and in those of incomplete ripeness (IR) without significant differences between them. The green immature pepper (V) presented the lowest vitamin C content (figure 2).

Keywords: *Capsaicinoids, Capsicum chinense, Vitamin C in habanero pepper, Soils from Yucatan*

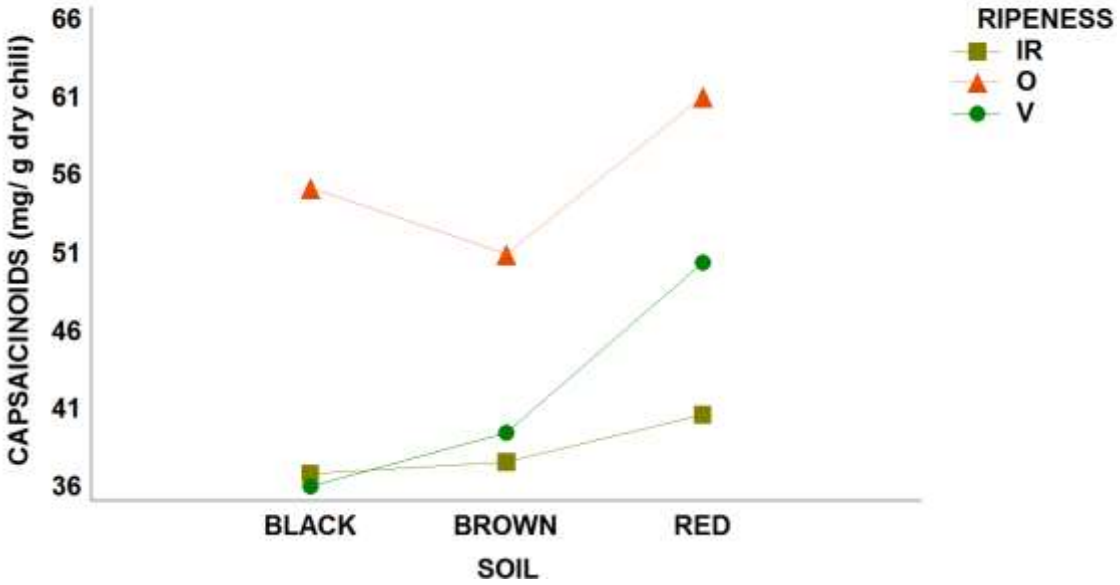


Figure 1. Capsaicinoids in Habanero pepper grown in different soils and with different degrees of ripeness.

IR: Incomplete Ripeness; O: Orange; V: Green

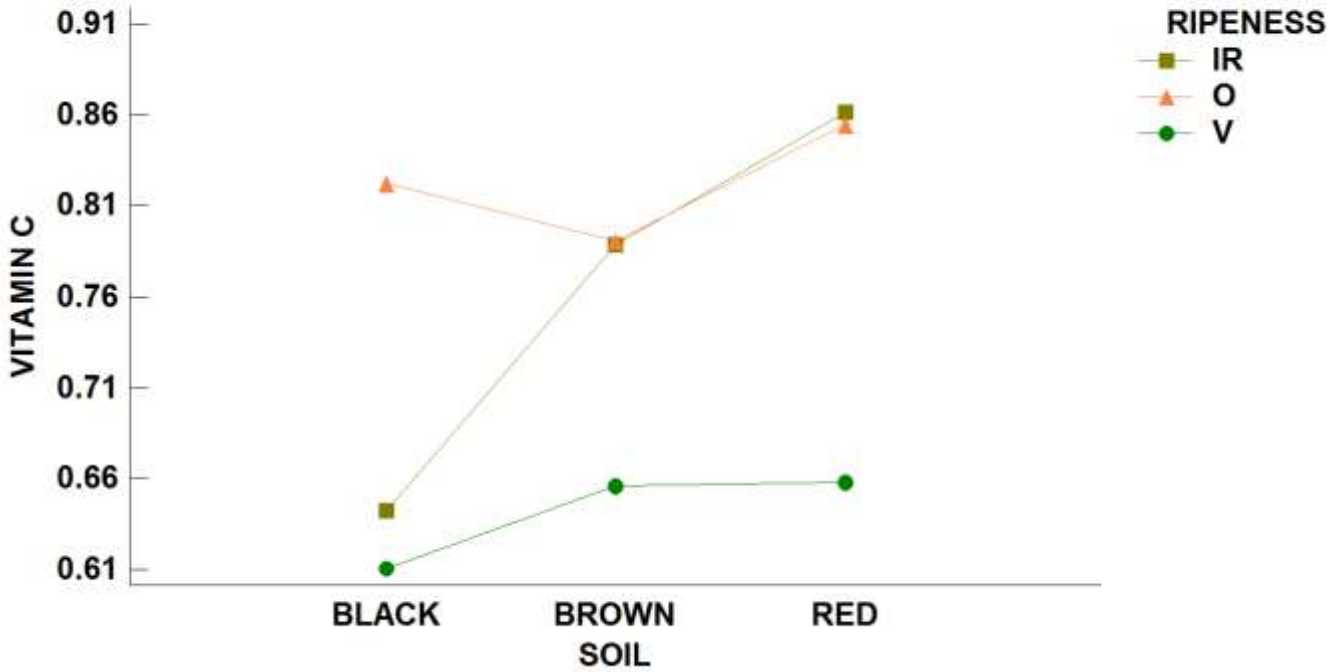


Figure 2. Vitamin C in Habanero pepper grown in different soils and with different degrees of ripeness.

Professional Biography

Ingrid Rodríguez-Buenfil has her expertise in Biotechnological Process and Design of experiments. Thirty two years of experience in scientific research, with participation in seventy eight projects (thirty one as Project Manager), four patents granted and six patent applications in process. 122 publications among scientific articles, extensive memoirs, books, book chapters, among others. Thirty-four graduate students. Founding Director of the Southeast Unit of Center for Research and Assistance in Technology and Design of the State of Jalisco (CIATEJ) in Mérida Yucatán, from July 2002 to April 2015. Member of to the National Research System (MX) level I from 2017-2020. Certified Evaluator of the National Council of Science and Technology (CONACYT). Your current project is Analysis of the metabolomic changes during the development of the fruit *Capsicum chinense* jacq cultivated in different soil types (Project CONACYT 257588).



Email Id: irodriguez@ciatej.mx