



Área: ANA

## Impact of Soil Composition, Peat and Mineral, on the Physicochemical Parameters of Cassava: A Study for Geographical Indication.

**Julia Vanelli\*** (IC)<sup>1,2</sup>, **Evandro L. Pasa** (PQ)<sup>3</sup>, **Marcus Polette** (PQ)<sup>3</sup>, **Antônio H. Santos** (PQ)<sup>4</sup>, **Albertina X. R. Corrêa** (PQ)<sup>1,2,3</sup>

[julia.vanelli@edu.univali.br](mailto:julia.vanelli@edu.univali.br)

<sup>1</sup>LaPeQ – Multiusuário, Univali; <sup>2</sup>Engenharia Química, Univali; <sup>3</sup>Programa de Pós-graduação em Ciência e Tecnologia Ambiental (PPCTA)-Univali; <sup>4</sup> Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina (EPAGRI).

Keywords: *Organic Soil, Nutritional Quality, Cassava (Manihot esculenta), Statistics.*

### Highlights

The analysis of cassava showed significant differences in physicochemical properties, highlighting the influence of soil type and serving as a basis for obtaining a Geographical Indication.

### Resumo/Abstract

This study aimed to evaluate the impact of different soil types on the physicochemical properties of cassava (*Manihot esculenta*). Understanding how soil conditions affect the chemical composition of the crop is crucial and may play a key role in obtaining a Geographical Indication (GI) for cassava cultivated in the region of Itajaí, SC. The research focused on peaty soils, rich in organic matter, and mineral soils, predominantly composed of rock particles. A total of 14 samples from four cassava varieties were collected in five locations in Itajaí and neighboring municipalities. After peeling, washing, grinding, and homogenization, the samples were frozen for subsequent analysis. The physicochemical parameters evaluated were moisture (gravimetric method by desiccation), ash (incineration in muffle furnace), and starch (titration with Fehling's reagent after hydrolysis). Statistical analysis was performed using JASP software, applying Welch's t-test with a 95% confidence interval. Comparative analyses revealed that soil type significantly influenced cassava characteristics, with statistically relevant differences for moisture ( $p = 0.014$ ) and starch ( $p = 0.007$ ). In contrast, ash analysis ( $p = 0.630$ ) did not show statistically significant differences. Regarding starch, cassava cultivated in mineral soil presented an average of 29.93%, while in peaty soil the value was higher, reaching 38.13%. For moisture, samples from peaty soil showed an average of 58.56%, compared to 65.23% in mineral soil. Ash content averaged 1.01% in mineral soil and 0.95% in peaty soil. These results demonstrate that soil composition is a determining factor for the nutritional quality of cassava. The findings underscore the potential for adding value to local cassava through a Geographical Indication, which, beyond strengthening its position in competitive markets, contributes to the preservation of peatland areas. Such preservation prevents urbanization and landfilling, ensuring the livelihood of small farmers and maintaining peat's environmental role as a natural flood regulator — increasingly relevant in the context of climate change and urban expansion.

### Agradecimentos/Acknowledgments

