CHARACTERIZATION OF SEED PROTEIN PROFILE OF WHITE SESAME VARIETIES (*Sesamum indicum* L.) OF SOCIO-ECONOMIC INTEREST IN PARAGUAY

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INTRODUCTION

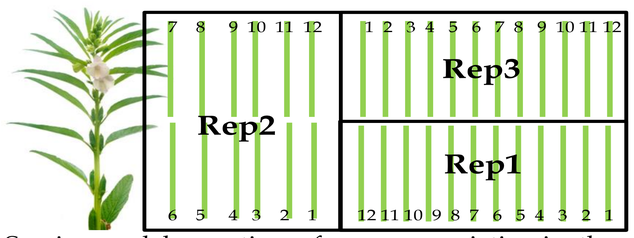
Sesame (*Sesamum indicum* L.) is one of the most important and oldest cultivated oil seed in the world. It is cultivated in tropical regions of Asia and Africa; and since few years ago in South America. FAO data places Paraguay among the most important producer of sesame seeds in America. This crop faces problems that cause a great economic loss for family farmers that are dependent of this activity.

For this reason, varieties with improved agronomic traits such as pathogen resistance and abiotic stress tolerance but conserving the same flavor of the seeds could improve the production of this seed. For a breeding program, it is important to know the variability of the start material.

OBJETIVE

This work aims to characterize of the seed protein profile of nine varieties of white sesame by using one-dimensional SDS-PAGE in order to know the variability based on seeds storage protein.

MATERIALS AND METHODS

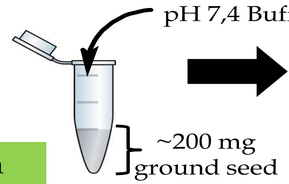


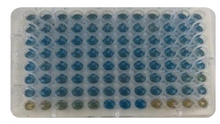
Sowing and harvesting of sesame varieties in the same environmental conditions. Cleaning and storage of seeds in conditions of humidity and controlled temperature

Three biological replicas by variety

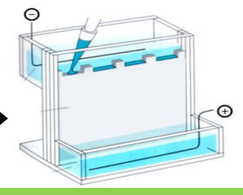
Sesame seed (*Sesamum indicum*)

Protein extraction





Quantification by Bradford



SDS-PAGE 4-12% polyacrylamide

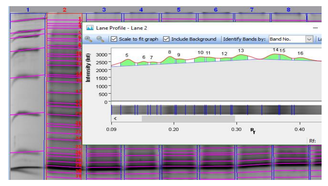


Image analysis (Image Lab)

RESULTS

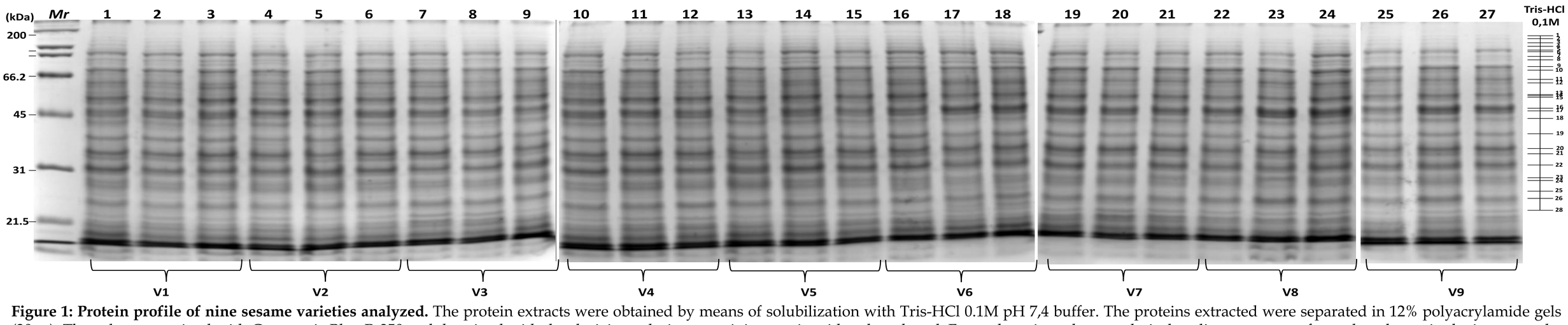


Figure 1: Protein profile of nine sesame varieties analyzed. The protein extracts were obtained by means of solubilization with Tris-HCl 0.1M pH 7,4 buffer. The proteins extracted were separated in 12% polyacrylamide gels (20ug). The gels were stained with Coomassie Blue R-250 and destained with decolorizing solution containing acetic acid and methanol. For each variety, three analytical replicates were performed as shown in the image, to the left of each gel is shown the relative molecular mass marker (Mr) and to the right a diagram of the bands detected in the Image Lab 5.2.1 program and later analyzed in NIA arrayanalysis

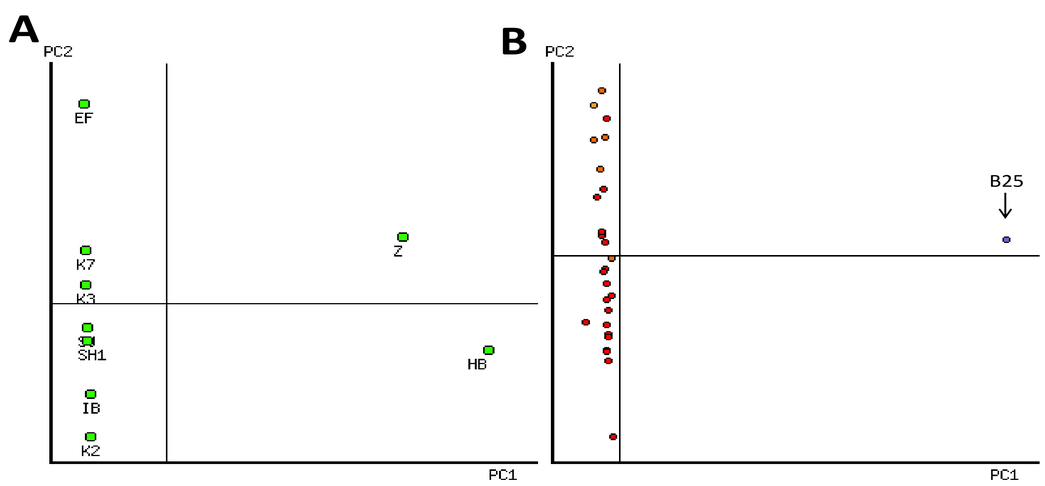


Figure 2- A. Principal component analysis (PCA), main component 1 (PC1), main component 2 (PC2), Z (*Zirandano* variety), SJ (*San Joaquín* variety), SH1 (SH1 variety), K7 (K7 variety), K3 (K3 variety), EF (*Escoba Fundación* variety), K2 (K2 variety), IB (INIA variety), HB (variety *Hermosa*). B. Graph of the bands analyzed facing main component 1 and 2. (B25) band 25.

CONCLUSIONS

According to the principal component analysis, two of the varieties analyzed showed differences in the seed protein profile compared to the other varieties. The used method cannot detect difference among the seven other varieties in our experimental condition. Therefore, this result should be complemented with 2DE-electrophoresis or gel free-label free methods to identify and quantify specific proteins, which can open a broad panorama for breeding programs.

REFERENCES

USAID Paraguay Vende. 89 p (2009). -Paul Borsy. GTZ. 45 p (2010). - - Biotecnol. 4(2) 38-44 (2011). - AFR J Biotechnol. 10(7) 1106-11(2011). - J Proteomics. 74(8) 1244-55 (2011)

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