Flavor of Soybean cultivars: Sensory Descriptive Analysis and Eletronic Tongue

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Abstract: Soybean cultivars have different uses and are classified as food type and grain type. Grain type cultivars are for oil processing and animal feeding and present “beany" flavor. Food type cultivars are those for human consumption that have special chemical, physical and sensory characteristics. Through sensory evaluation, it was possible to identify different flavors for five distinct special soybean cultivars: BRS 213 (null lipoxygenases), BRS 216 (small grain size), BRS 267 (vegetable type), BRS 133 and BRS 258 (grain type cultivars).The objective of this work was to study the sensory characteristics of different soybean cultivars using the Quantitative Descriptive Analysis (QDA) by Stone and Sidel, 2004 [1] and the electronic tongue fabricated by self-assembly technique employing an automatic deposition of films developed at Escola Politécnica - USP. Data was analysed by Principal Component Analysis (PCA) using the STATISTICA program version 6.0 (2001) and results showed that, electronic sensors were effective in distinguishing and separating soybean cultivars in five different groups as the evaluation of the trained sensory panel. In Figure 1 it can be observed the comparing graphics of the PCA data obtained by QDA with the electronic tongue, where the separation of soybean cultivars is distingueshed. Therefore the use of the electronic tongue in food assessment can provide a rapid and accurate method to analyse flavor of food products, and lines for breeding purposes.

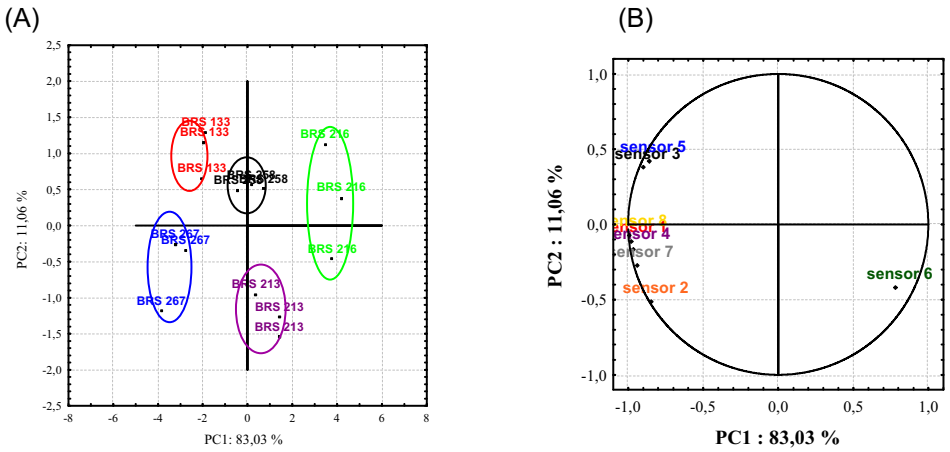

Figure 1 - Projection of soybean cultivars on the factorial plan PC1 and PC2 of the Principal Component Analysis (PCA) using the eight electronic sensors in the frequency of 1 kHz

References

[1]STONE, H.; SIDEL, J. L. **Sensory Evaluation Practices.** 3 ed. Food Science and Technology, International Series Elsevier Academic Press., 377 p., 2004.
[2]RIUL JR., A.; MALMEGRIM, R. R.; FONSECA, F. J.; MATTOSO, L. H. C. An artificial taste sensor based on conducting polymers. **Biosensors and Bioelectronics**, v. 18, p. 1365–1369, 2003.