# METABOLOMIC APPROACH OF PHENOLIC COMPOUNDS IN SORGHUM EXTRUDATES ADDED OF *CURCUMA LONGA* POWDER

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Keywords: *Sorghum bicolor*; turmeric; LC-MS$^E$.

Sorghum is a potential substitute for allergenic cereals due to their nutritional/functional benefits but also to the high resistance to extreme environmental conditions (drought and heat). The addition of turmeric (*Curcuma longa*) may further enrich the technological and functional properties in sorghum-based products. This study aimed to evaluate the profile of phenolic compounds in extruded sorghum enriched with Curcuma. Two genotypes of sorghum (SC319) and (tannin-free BRS330) were enriched with Curcuma and submitted to extrusion, corn was applied as control. Free (FPC) and bound (BPC) phenolic compounds were extracted separately, phenolic profile was analyzed by UPLC-ESI-QTOF-MS$^E$ in negative mode and data were processed using Progenesis QI software. Metabolites were compared with analytical standards and customized databases based on fragmentation patterns, mass error, isotopic similarity and reproducibility. In all extracts, 75 FPC and 103 BPC were tentatively identified. Among them, 29 compounds were found in both FPC and BPC extracts. The BPC was the most abundant, corresponding to 61% of the total ions. *Daidzin*, *4-hydroxybenzoic acid* and *kaempferol* were the most abundant compounds in FPC and *isoferulic acid*, *4-hydroxybenzoic acid* and *p-coumaric acid* in BPC. As expected, corn control samples showed the lowest values . The highest number of identified compounds and abundance was in the sample SC319+Curcuma in both extracts, with 34% of total abundance, 59 FPC (79%) and 89 BPC (86%). In addition, this sample had 12 unique PC compared to others. The tannin-free sample presented higher abundance and number of identifications in the free extract, while its enriched form presented higher values in the bound extract. In conclusion, our findings suggest that the variation of polyphenol profile among sorghum genotypes is arising from genetic factors, as the presence of tannins, and the Curcuma addition significantly improve the bioactive potential of Sorghum extrudates.

Acknowledgments: This work was funded by FAPERJ, CNPq, EMBRAPA and CAPES - Finance Code 001.

**ISSN:** 2447-2840