



CHEMICAL PROFILING OF TRITICALE (*Triticum aestivum* L.) AT DIFFERENT PHENOLOGICAL STAGES UNDER GREENHOUSE CONDITIONS

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Abstract:

Triticale (*Triticum aestivum* L.) is a hybrid plant among rye and wheat whose principal properties are related to the resistance to different environmental conditions of rye and the high productivity of wheat [1]. It was frequently used as food to livestock for its nutritional properties [2]. However in the latest years have increased the crops of Triticale for human food [3]. For Triticale have also been reported chemical compounds with biological activity such as alkylresorcinols (ARs) [4], which exhibited antioxidant and antifungal activity [5]. Therefore, the aim of the present work was to characterize those Triticale materials by chemical profiling at different phenological stages within a bio- and chemoprospecting initiative. Thus, seven phenological stages were established in the lifecycle of Triticale, which were seed, tillering, first knot, flag leaf, first spike, maturity and harvest. Spike, bran, seed (reproductive stages), leafs and roots were considered as different plant structures. Each part at different phenological stages was chemically characterized by total contents measurements. Therefore, the total ARs content and total phenolic content were determined using FBRR® and the Folin-Ciocalteu methods, respectively. The free radical scavenging capacity was measured through the inhibition of 2,2-difenil-1-picrylhydrazyl radical (DPPH). All analyses were realized by micromethods in ELISA equipment. The major amount of microgram of ARs equivalent to Olivetol/gramme of dry extract (μg ARs eq Olivetol/g DE) was found in the sample of Triticale bran at seventh stage, and the minor amount was found in the roots at 1 first stages. Leaf of all stages were found to have the major amount - of the total phenolic content. The present work is a product derived by the Project INV-CIAS-1788 financed by Vicerrectoría de Investigaciones at UMNG, validity 2015. It is concluded that the development in the life cycle of Triticale had a variation of its total content of phenols and ARs, however, they are not correlated.

References:

- [1] Varughese G., Baker T., Saari E. 1987. Triticale. CIMMYT, Mexico, D. F.
 - [2] Arendt E., Zannini E. 2013. Triticale. Cereal grains for the food and beverage industries, p.p. 201-219
 - [3] Peña R. 2004. Food uses of triticale. En FAO plant production and protection paper. Triticale improvement and production, p.p. 37-48
 - [4] Mezel C., Kamal A., Marklund M., Andersson A., Aman P., Landberg R. 2012. Alkylresorcinols in Swedish cereal food products. Journal of food composition and analysis. 28: 119-125
 - [5] Zarnowski R., Kozubek A., Pietr S. 1999. Effect of rye 5-n-alkylresorcinols on in vitro growth of phytopathogenic Fusarium and Rhizoctonia fungi. Plant protection. Biological Sciences 47. 231-235.
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