

DEVELOPMENT OF A NEW METHOD TO DETERMINE MACRO- AND MICRONUTRIENTS IN BARLEY FORAGE SAMPLES USING LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS). **Andressa Adame**^{1,2}, Francis Vanier², Allan Fuertado³, Mohamad Sabsabi², François Vidal¹, ¹Institut National de la Recherche Scientifique, Centre Energie Matériaux Télécommunications, 1650 Lionel-Boulet blvd., Varennes, QC J3X 1S2, Canada ; ²National Research Council of Canada, Clean Energy Innovation Research Center 75 de Mortagne Blvd., Boucherville, QC J4B 6Y4, Canada; ³National Research Council of Canada, Aquatic & Crops Resource Development, 110 Gymnasium Place, Saskatoon, SK S7N 0W9, Canada. (andressa.adame@inrs.ca)

Laser-Induced Breakdown Spectroscopy (LIBS) has been established as a reliable and efficient alternative to conventional analytical methods. It is a versatile analytical technique that enables multi-elemental analysis of solid samples in a faster way, and it has been considered an excellent tool for assessing nutritional content of plant material. In this presentation, we will present the development of the method to analyze the elemental composition of barley forage using LIBS. First, different instrumental configurations and experimental parameters were evaluated in order to optimize the determination of macro- (Ca, Mg, K, P, N) and micronutrients (Fe, Zn, Mn) in the samples. Then, 61 barley forage samples were analyzed using the developed method. This presentation will focus on the method optimization studies and the results obtained for barley forage samples.

[1] Arantes de Carvalho GG, *et al.* Recent advances in LIBS and XRF for the analysis of plants. *J. Anal. At. Spectrom.* 33 (2018) 919–944.