Treatment enzymatic hydrolysis of starch from potato (*Solanum tuberosum L.*) cultivar Asterix.

Aline G. T. Menezes; Pietro M. Mastos; Evandro G. T. Menezes; José Guilherme L. F. Alves; Lívia V. C. Reis. Department of Food Science, Federal University of Lavras – UFLA, Campus Universitário, 37200-000 Lavras, Minas Gerais, Brazil

Ethanol is mainly produced from renewable sources, through the conversion of sugars such as sugar cane and sugar beets and of maize starch, wheat roots and tubers. Part of the potato (*Solanum tuberosum L.*) production is rejected in the harvest or discarded because of the lack of appropriate size or external defects, and it is an important source of carbohydrates, which may be used to produce ethanol. The aim of this work was to study the kinetics of enzymatic hydrolysis of starch in this tuber evaluating different concentrations of the enzyme glucoamylase. The enzymatic hydrolysis process was carried out with the Asterix cultivar due to the high amount of starch in its composition (81.4% dry basis) and high dry matter content (25.7%). The process was divided into two steps, the first with 1.5 mL of the enzyme alpha-amylase at 90 °C under agitation of 150 rpm and the second with the enzyme glucoamylase in concentrations ranging from 1.0 mL, 1.5 mL and 2.0 mL per kg of potato, for 125 minutes at 60 °C under agitation of 150 rpm. Samples were taken at 0, 25, 75, 100 and 125 minutes and the levels of total and reducing sugars were determined by DNS method. The results were statistically analyzed using the Tukey test at 5% significance level. It can be concluded that the best results were obtained using 1.5 mL of enzyme for 100 minutes of treatment with final content of reducing sugars of 67.7g/L and total reducing sugars, 75.03g/L.

Acknowledgements: FAPEMIG for financial support.