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CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

CRUDE FIBER ANALYSIS USING NONWOVEN BAGS IN AUTOCLAVE AS ALTERNATIVE TO A REFERENCE METHOD

Eduardo Michelon do NASCIMENTO*[1], Rafaela Mocochinski GONÇALVES[1], Deborah SANDRI[1], Daniela Borges da CRUZ[1], Matheus FRIEDRICH[1], Sergio Rodrigo FERNANDES[1], Américo Fróes GARCEZ NETO[1]

*corresponding author: edu.vetufpr@gmail.com
[1]Federal University of Paraná, Palotina, Paraná, Brazil

The reference method used to determinate the crude fiber (CF) consists of boiling the samples in acid and basic solutions inside beakers, followed by filtration of the last solution in Gooch crucible. This procedure is onerous, and after CF extraction the crucibles need to be cleaned up with solutions that are harmful to human health. An alternative to minimize these problems would boil the samples inside nonwoven bags in individual containers, and under pressure in autoclave. Thus, the aim of this study was to compare the autoclave method with the reference method used in CF analysis. Two samples, one of soybean meal (SM) and other of corn grain (CG) were analyzed. In the reference method, aliquots of 2 g from each sample were placed in beakers containing 200 mL of acid solution (H_2SO_4 at 1.25%) and boiled during 30 minutes. After this time, the solution was submitted to vacuum filtration in Buchner funnel with polyester screen, and the filtered residue was placed in a beaker containing 200 mL of basic solution (NaOH at 1.25%) and boiled during 30 minutes. After this step, the CF was extracted by vacuum filtration of latest solution in Gooch crucibles. In the autoclave method, aliquots of 25 mg from each sample were placed into nonwoven bags (5 x 5 cm), which were sealed and placed into individual plastic containers with 80 mL of acid solution. These containers were closed and kept in the autoclave (105 to 110ºC at 0.5 kgf cm^{-2} of pressure) for 40 minutes. After this time, bags were washed with distilled water (>90ºC) and boiled in 80 mL of basic solution following the same procedure in the autoclave. Data were analyzed by ANOVA in a 2 x 2 factorial scheme with two feedstuffs, two analytical methods and ten replicates. Means for isolated effects and its interactions were compared by F test ($P<0.05$). There was no interaction between feedstuffs and analytical methods. The CF content was greater in the autoclave method compared to the reference method (3.57 *vs.* 2.64% of dry matter – DM). This may be related to the retention of soluble components inside the nonwoven bags, which overestimated the CF content of feedstuffs. The SM showed greater CF content than CG (4.28 *vs.* 1.93% DM). The autoclave method, as applied in this study, cannot be used as an alternative to the reference method of CF analysis of feedstuffs.

Keywords: analytical methods, feedstuffs, ground corn, soybean meal