

Effect of commercial enzymes, pH and temperature on phytate content of corn and soybean meal under *in vitro* condition

Modirsanei, M.¹; Rahimi, Z.S.²; Mansoori, B.¹; Rezaian, M.¹; Farkhoy, M.¹ and Honar zad, J.³

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Abstract

The objective of this study was to evaluate of pre-treating of feed ingredients (corn and soybean meal) with different factors on phytate content under *in vitro* condition. For this purpose three commercial enzymatic products (Bio-phytase, Rovabio Excel AP, and Rovabio Max AP) and three different solutions including distilled water, HCl 0.5% and HCl 1% (with levels of pH = 5.5, 2.12 and 1.88, respectively) were used. Each sample was first supplemented with the enzymatic products, and then pre-treated with the above mentioned solutions for 2 hours at at 25 and 40°C, and phytate content was determined. Results indicated that addition of different solutions (at 25 and 40 for 2 hours) to corn samples mixed with Bio-phytase or Rovabio Max AP caused a significant reduction in the content of phytate. The best results were obtained when corn samples were treated with Rovabio Max AP and mixed with HCl 0.5% at 40 °C, where phytate content decreased up to 98.5% in comparison with control. The same results were observed in soybean samples, where the highest reduction in phytate content (up to 55.4%) was found when they were mixed with Rovabio Max AP and then treated with HCl 0.5% solution at 25° C. According to results it could be concluded that adding HCl 0.5% to corn and soybean meal which were mixed with Rovabio Max AP (including phytase and NSPases enzymes) increased phosphorus bioavailability.

Key word: Pre-treatment, Phytate, Bio-phytase, Rovabio Excel AP, Rovabio Max AP

1- Associate Professor, Department of Animal and Poultry Health and Nutrition, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

2- PhD Graduated of Animal Feed Health, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

3- Expert, Department of Animal and Poultry Health and Nutrition, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

Corresponding Author: Rahimi, Z.S., E-mail: zsadat@ut.ac.ir

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