شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

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HANAA ALY

EFFECT OF NANOMINERALS ADDITION ON *IN VITRO* DIGESTIBILITY OF SOME ROUGHAGES

By

SHYMAA MOJAHED ABD EL-AAL HASHEM
B.Sc. Animal and Poultry Production, Fac. of Agric. Ain Shams Univ., 2012

A Thesis Submitted in Partial Fulfillment
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ABSTRACT

Shymaa Mojahed Abd El-Aal: Effect of Nanominerals Addition on *In vitro* Digestibility of some roughages. Unpublished M.Sc. Thesis, Department of Animal Production, Faculty of Agriculture, Ain Shams University, 2021.

The thesis focuses on the evaluation of the addition of nanocobalt *In vitro* trials to dry matter, organic matter, cellulose and hemicellulose. Nanocobalt was added to fermentation at a rate of 0, 25, 50, 75, 100, and 125 percent of the animal requirements on a dry matter basis. For 24 hours, the standard ration (1:1 concentrate: clover hay) was incubated. The impact of adding 25 and 50 percent nanocobalt to some roughages (rice, bean, wheat, peanut, and bagasse) straws were then investigated using *In vitro* disappearance extent after 24 and 48 hours of dry matter, organic matter, cellulose, and hemicellulose. *In vitro* gas production results have shown that the values of DMD degradability ($P<0.05$) have increased by 50% and 75% while OMD highest value was nanocobalt by 25% and 50%. Nanocobalt has no effect on pH but had a greater effect on ammonia, TVF's values and the degradation of microbial protein cell wall components. Gas production was high in the control ration, cobalt (100%) and nanocobalt (25% and 50%) added. The values for all the various nanocobalt additives reported are high microbial protein (MP) and efficiency microbial protein (EM P) values. In comparison with any additional levels, nanocobalt with 25 and 50 percent output gas DM, NDF, ADF, cellulose, and hemicellulose were increased ($P<0.05$). The results indicate that adding nanocobalt increased gas, ammonia, TVF's, metabolizable energy, and cell wall components degradability. It showed a stronger effect on the disappearance of DM, OM, NDF, ADF, cellulose and hemicellulose by the addition of nanocobalt. Furthermore it was noted that the addition of 25% ($P<0.05$) of nanocobalt has a major impact on improving the disappearance of all roughages, other than bagasse with the addition of 50% nanocobalt *In vitro* DM and OM.

Keywords: *In vitro* gas production, nanocobalt, degradability, dry matter, cellulose, hemicellulose and roughages.

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