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Comparative Rumen Degradable and Rumen Undegradable Fractions in Untreated, Formaldehyde and Heat Treated Vegetable Protein Sources of Pakistan

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Abstract : Protein sources are the major part of ration fed to dairy buffaloes in Pakistan however, the limited availability and lack of judicious use of protein resources are further aggravating the conditions to enhance milk and meat production. In order to gain maximum production from limited protein source availability, it is necessary to balance feed for rumen degradable and rumen undegradable protein fractions. This study planned to know the rumen degradable and rumen undegradable fractions in all vegetable protein sources with (formaldehyde and heat treatment) and without treatments. Samples of soybean meal, corn gluten meal 60%, maize gluten feed, guar meal, sunflower meal, rapeseed meal, rapeseed cake, canola meal, cottonseed cake, cottonseed meal, coconut cake, coconut meal, palm kernel cake, almond cake and sesame cake were collected from ten different geographical locations of Pakistan. These samples were also subjected to formaldehyde (1% /100g CP of test feed) and heat treatments (1 hr at 15 lb psi/100 g CP of test feed). In situ technique was used to know the ruminal degradability characteristics. Data obtained were fitted to Orskove equation. Results showed that both treatments significantly ($P < 0.05$) decreased ruminal degradability in all vegetable protein sources than untreated vegetable protein sources, however, of both treatments, heat treatment was more effective than formaldehyde treatment in decreasing ruminal degradability in most of the studied vegetable protein sources.

Keywords : formaldehyde and heat treatments, in situ technique, rumen degradable and rumen undegradable fractions, vegetable protein sources
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