UNIVERSITÄT HOHENHEIM



Publikation

# In vitro fermentation characteristics and effective utilisable crude protein in leaves and green pods of Moringa stenopetala and Moringa oleifera cultivated at low and mid-altitudes

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**Abstract:** This study was conducted to assess the in vitro nutrient digestibility and utilisation of leaves and green pods of two Moringa species in supplementing the feed of ruminant animals during the dry season. Samples were analysed for proximate nutrients using official methods. The metabolisable energy (ME), organic matter digestibility (OMD) and effective utilisable crude protein (uCP) were estimated using the Hohenheim in vitro gas test method. Gas volume in Moringa stenopetala leaves and green pods was generally higher than those of Moringa oleifera. Gas volume for leaves was similar between low and mid-altitudes but was higher for green pods at mid-altitude. M. stenopetala leaves contained significantly higher ME (9.8 MJ/kg DM) and OMD (75%) than those of M. oleifera. Similarly, M. stenopetala green pods had higher ME and OMD values than those of M. oleifera. For green pods, the ME and OMD values were significantly higher at mid-altitude than those at low altitude although these values for leaves were similar between both altitudes. Moringa oleifera leaves had higher effective uCP than those of M. stenopetala. Nevertheless, the effective uCP was higher for green pods of M. stenopetala than those of M. oleifera. The effective uCP for leaves cultivated at mid-altitude was slightly higher than those at low altitude. This study suggested that leaves and green pods could be used as alternative energy and protein supplements for tropical ruminants, particularly during dry periods. It was further concluded that leaves were generally better in nutrient compositions and in vitro nutrient digestibility characteristics than green pods.

**Schlagworte:** Blätter, Fruchtschale, gas production, Höhenlage, in vitro, Moringa sp., nutzbares Rohprotein

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