

Introduction

In ruminant animals, the essential minerals are required not only for the host animals but also for the microbes living in the rumen. They are needed by rumen microbes for the cell functions, growth and their activity. Moreover, the essential minerals also contribute to the regulation of some physicochemical characteristics of the ruminal medium such as osmotic pressure, buffering capacity, redox potential and dilution rate, all of which affect the extent of ruminal fermentation. In assessing mineral requirements of animals, both the quantity of minerals in the feeds and their bioavailability must be considered. The former can be determined by chemical analysis while the latter is much difficult to assess. *In situ* nylon bag technique has been considered to be used for determining the mineral bioavailability by incubating forage sample in the rumen of fistulated ruminants. This technique can measure the extent and rate of release of minerals in the rumen where most of the organic matter is digested.

The *in situ* nylon bag technique has been used with varying success in the determination of dry matter, crude protein and fiber degradability. Several studies with this technique deal with ruminal solubility of minerals (Emanuele and Staples, 1990; Field, 1981; Ledoux and Martz, 1991; Playne et al, 1978; Rooke et al, 1983 and van Eys and Reid, 1987) and very few of them reported work on forages from the tropical countries. Therefore, the present study was aimed to evaluate the minerals solubility of selected forages in South Sumatra, Indonesia during dry and rainy seasons through measurement of minerals disappearance from nylon bag after the forages samples are incubated in the rumen at certain periods. The data are useful in formulating a diet for the ruminants in the tropics where mineral deficiencies are common and mineral supplementations are either rare or none at all (McDowell, 1985).

Material and methods

Study area and collection of forages samples

This study was conducted in Palembang (South Sumatra) during dry and rainy seasons. The forages evaluated consisting three grass species and four legume species. Details of the study area and procedures of the forages collection were the same as described in the previous study (Evitayani et al., 2006a).