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In vitro Digestibility of Some Local Feeds Resources in Southern Tunisia: Comparison Between Two Inoculums Sources

Naziha Ayeb*, Ahlem Atoui, Mohammed Hammadi, Mabrouk Seddik, Touhami Khorchani

Livestock and Wildlife Laboratory, Institute of Arid Regions, Medenine, Tunisia

Abstract

Face to the climatic factors variability and in order to manage seasonal and prolonged droughts, the breeders developed several strategies in southern Tunisia. To ensure their animal feed, they benefit from the favourable seasons to stock reserves by harvesting and drying some local feed such as: spontaneous plant species as natural hay locally known as “khortane”, the olive by-product and the collecte of *Stipa tencissima*. This work aims to estimate the *in vitro* digestibility of some local feed resources used in southern Tunisia by two sources of inoculum: faecal fluid (LF) and ruminal fluid (LR). The results showed that the best *in vitro* digestibility values of dry matter (IVDMD) using both inoculums were recorded for dried olive leaves (65.5 ± 0.25 and 65.4 ± 0.24%, respectively, for LR and LF). The lowest IVDMD value was recorded for *Stipa tenacissima* (29.64 ± 0.52 and 29.80 ± 0.80% respectively for LR and LF). The IVDMD was similar in the Khortane (grass hay) and oat hay (52.07 ± 0.79 and 51.57 ± 0.16%, respectively, for the LR and LF). These results led to the conclusion that IVDMD values of these local feed resources are close by using both sources of inoculum. Fecal liquor can without loss of effectiveness of replace the rumen liquor to estimate feed digestibility (R2 = 0.999).

Keywords

in vitro Digestibility, Arid Region, Local Feed Resources, Inoculum

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1. Introduction

In Tunisia's arid regions, the feeding of small ruminants is based on natural resources, spontaneous vegetation in rangelands and the rest of agriculture. The availability of these resources is uncertain [1]. Dry regions are marked by a long dry season (6-9 months) and pasture is only available for a short period in the spring (3-4 months) [2]. When rangeland resources cannot meet livestock maintenance and growth needs; pastoralists in arid land have developed several strategies to meet the nutritional needs of their livestock. During the good years, pastoral species can provide excellent food for animals from autumn to spring. These species are used either green by direct grazing during grass growth or harvested to be dried and preserved as natural hay called "khortane" and *Stipa tenacissima* and used during dry periods [3-5]. The use of natural resources is a common practice in southern Tunisia, in summer and in times of drought, khortane and gueddim are very important forage resources for small ruminants as well as equines and camels [6]. The appreciation of the nutritional value of these feeds is strongly linked to the determination of their digestibility. Measurements on animals require complex facilities and large quantities of test feeds, so they are very expensive. To eliminate these difficulties, the *in vitro* digestibility estimation technique was used using two sources of inoculum

* Corresponding author
E-mail address: naziha.ayeb@yahoo.fr (N. Ayeb)