


ORIGINAL ARTICLE

Ruminants

Effect of local diets on nutritional and sensory quality of meat of indigenous goats in Tunisian arid regions

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Abstract

The valorization of natural resources in small ruminants feeding can reduce the cost of feed and produce good meat quality. The objective was to evaluate the effects of local feed resources on the physico-chemical aspects, the sensorial characteristics and the fatty acid profile of goat kid's meat. Twenty-six kids are divided in three groups (average body weight = 15.85 kg; age = 4 months). The groups received oat hay (group control C), dried olive leaves + dried *Stipa tenacissima* (group OL) or grass hay (group Ko). The animals were slaughtered after 90 days of experience, with an approximate final live weight of 18.5 kg. Total solids, pH, fat, crude protein, vitamin, cholesterol and fatty acid contents of meat were determined. The OL group had the highest ultimate pH (6.82 vs. 6.73); cooking loss, gross composition (total solids, protein and fat), cholesterol and colour coordinates (L , a^* and b^*) were similar among groups. The vitamin E, affected by diet, was higher in group OL than the other groups (3.71 mg/kg vs. 1.32 and 2.17 mg/kg, respectively, for C and Ko groups). Moreover, meat from this group showed the highest saturated fatty acid. Unsaturated fatty acids content was higher in the meat of C and Ko groups. On the other side, polyunsaturated fatty acid level was not affected by the diet treatment. The n6/n3 ratio was significantly affected by the diet; it was lower in meat of groups Ko and OL (3.17 and 3.38 respectively). The feeding effect on sensory quality of meat was not significant.

KEYWORDS

fatty acid, indigenous goat, local feed resource, meat quality of goat, Tunisian arid land

1 | INTRODUCTION

In Tunisian arid lands, goat farming is predominant and goats use rangelands as main components of their diet. When resources from rangelands cannot meet the maintenance and growth requirements of goats, the breeders developed several strategies to ensure the nutritious rations of their livestock. They profit from the favourable season to stock reserves by harvesting range species such as natural grass hay locally called grass hay (Khortane). Khortane is a mixture of annual and perennial species, which are always collected in the spring and stored for the period of drought. Four species are

the most searched for the making of the Ko: *Launaea resedifolia*, *Chrysanthemum coronarium*, *Lolium multiflorum* and *Erodium glaucophyllum* (Ayeb, 2009). In summer and in drought period, Khortane is a very important forage resource for small ruminants as well as equines and camels. Others dried resources such as *Stipa tenacissima* and olive leaves are also commonly used.

The goat is an important source of animal protein for humans in warm climates, and the meat from goat kids is sought after in many parts of the southern Tunisia. However, the declining profitability of traditional livestock production systems is a major challenge to farmers. In arid areas, livestock feed is based on the use of rangelands