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Carcass measurements for ethnic allocation in cattle

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Animal breed identification is since long time one of the main aspects in the production and marketing of beef, also shown on the labels for consumer's guarantee. To quickly verify, at slaughterhouse, the truthfulness of some of the declared parameters, this study aimed to use carcass's measurements to correctly assign them to different genetic types.

The trial was carried out on 36 carcasses obtained from 6 homogeneous groups of male cattle of different breeds (P, Piemontese; L, Limousine; C, Charolaise; B, Brown; F, Friesian; PxF, crossbred PxF), slaughtered at similar age (approx. 18 months). After slaughtering, half carcass weight and linear measures (side and leg length, maximum and minimum leg width, chest depth) were recorded and data analysed by Linear Discriminant Analysis procedure (IBM SPSS Statistics 22.0, SPSS Inc., Chicago, IL), to evidence differences among breeds.

In the graphic result of the discriminant analysis applied to the half carcass weight and carcass measures the different groups of animals were easily identified. In fact, the 94.4% of the original grouped cases were correctly classified: 83.3% of P (16.7% ascribed to L), 100.0% of L, 100.0% of C, 100.0% of B, 100.0% of F, and 83.3% of PxF (16.7% ascribed to F). Moreover, the discriminant Function 1 explained the 74.1% of the total variance, the Function 2 the 15.9% (90.1% as cumulative variance), the Function 3 the 7.6% (97.7% as cumulative variance), and the Function 4 and 5 the remaining 2.3%. In detail, Function 1 was mainly affected by chest depth and maximum leg width, while Function 2 was mainly affected by carcass length and minimum leg width, Function 3 was mainly affected by minimum leg width and half carcass weight, Function 4 was mainly affected by maximum leg width, and Function 5 was mainly affected by maximum leg width, carcass length and half carcass weight.

Then, the use of the discriminant analysis applied to the cattle carcass measurements seems to be effective for correctly allocate the carcasses to the genetic type of origin.

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Determination of some water-soluble vitamins in donkey milk

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Donkey milk chemical composition is very similar to human milk. In fact, donkey's milk is characterized by a low casein content which makes it a good substitute for cow's milk in cases of Cow's Milk Proteins Allergy (CMPA). Furthermore, the high content of lactose makes this milk useful for the treatment of osteoporosis in adults, whereas in infants, it promotes bone mineralization and the development of the intestinal bacterial flora. In this work, the content of some water-soluble vitamins in donkey's milk (vitamin B_1 or thiamine, vitamin B_2 or riboflavin, vitamin B_9 or folic acid and vitamin C) has been determined. Milk samples were collected weekly over a 3 months period from 12 cross-bred donkeys in mid-lactation reared in the same farm; samples were stored at -20 °C till the performing of chemical analysis. Different standard solutions of the vitamins were used in order to obtain the respective calibration lines; the concentrations of thiamine, riboflavin and folic acid in donkey's milk were determined by RP-HPLC using the equation of the corresponding calibration line. The following results were obtained: vitamin B_1 2.55 ± 0.01 mg/L, vitamin B_2 0.04 ± 0.01 mg/L; folic acid was found only in traces. Vitamin C has been determined using the kit ENZYPLUS EZA 941+ L - Ascorbic Acid, and the result showed that the average concentration of vitamin C in donkey's milk is 57 mg/L. From these preliminary studies, other additional nutraceutical properties of donkey's milk were highlighted, since the presence of vitamin B_1 and vitamin C seems to be quite high compared to bovine milk, in which the average content is respectively 0.80 mg/L for vitamin B_1 and 18 mg/L for vitamin C. Vitamin B_1 acts as a cofactor of cytosolic transketolase, an enzyme of the pentose phosphate pathway which provides the pentose phosphate group for the synthesis of nucleic acids and NADPH for the synthesis of lipids. Vitamin C is a powerful antioxidant and is essential in numerous enzymatic reactions and in the collagen formation, the recommended daily intake of vitamin C is 60 milligrams. Finally, studies have shown that intake of vitamin C from the milk may be associated with a reduced risk of atopic dermatitis in children. The determination of other water-soluble and fat-soluble vitamins is ongoing, in order to obtain a complete profile of the vitamins content in donkey's milk.

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