

Protein digestibility of different varieties of white lupine

P. Homolka, F. Jančík, V. Koukolová

Institute of Animal Science, Czech Republic

contact email: homolka.petr@vuzv.cz



CONCLUSION

The significant differences among the estimated varieties of lupines ($P < 0.05$) were declared for intestinal digestibility of protein (*Butan* vs *Dieta*, *Amiga* vs *Butan*) and subsequently for glutamate (*Butan* vs *Dieta*) and proline (*Amiga* vs *Butan*).



METHOD

The digestibility profiles of protein and individual amino acids (AA) were evaluated using mobile bag technique in three rumen and T-piece duodenal cannulated cows.

Concentration of dry matter (DM), crude protein (CP), ether extract (EE), crude fibre (CF), neutral detergent fibre (NDF), acid detergent fibre (ADF), ash and individual essential AA and non-essential AA in lupines was determined.

OBJECTIVE

Determination of the intestinal digestibility (DSI) of rumen undergraded protein in different varieties of white lupine (*Amiga*, *Butan*, *Dieta*).

RESULTS

Chemical composition of lupines (%)

	<i>Amiga</i>	<i>Butan</i>	<i>Dieta</i>
DM	90.8	90.7	89.1
CP	29.3	31.9	33.5
EE	9.8	9.9	10.6
CF	22.8	21.8	19.2
Ash	4.3	4.2	4.4
NDF	55.1	43.6	40.2
ADF	32.0	31.5	24.3



DSI of compared lupines (%)

	<i>Amiga</i>	<i>Butan</i>	<i>Dieta</i>
DM	39.65 ^a	46.66 ^b	48.99 ^b
Protein	70.65 ^a	83.85 ^b	75.45 ^a
Essential amino acids			
Arginine	89.16	91.01	89.41
Histidine	85.31	85.44	80.04
Isoleucine	88.34	88.09	86.10
Leucine	89.03	89.96	86.75
Lysine	77.10	81.58	75.87
Methionine	89.19	89.26	91.06
Phenylalanine	87.80	87.20	84.76
Threonine	85.23	86.64	85.22
Valine	81.04	80.59	78.85
Non-essential amino acids			
Alanine	87.18	86.88	87.12
Aspartate	86.96	89.19	87.35
Cysteine	74.95	74.94	66.19
Glutamate	91.34 ^{ab}	93.73 ^b	91.07 ^a
Glycine	84.48	86.07	85.02
Proline	75.35 ^a	80.97 ^b	78.16 ^{ab}
Serine	77.32	79.75	78.24
Tyrosine	87.32	87.19	85.87

a,b,c,d Within a row means with the different superscript letters are different ($P < 0.05$)

The study was supported by the Ministry of Agriculture of the Czech Republic (NAZV QG 60142).