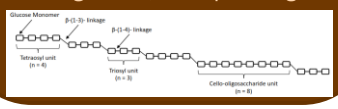
Variability in β-D-glucan content for next uses of oat seeds in the food industry.

Michaela Havrlentová[1,2], Peter Hozlár[3], Daniel Mihálik[1,2]

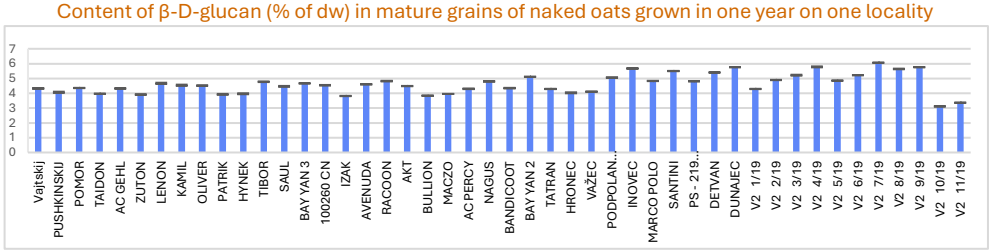
[1] Department of Biotechnology, Faculty of Natural Sciences, University of Ss. Cyril and Methodius, Námestie J. Herdu 2, 917 01 Trnava, Slovakia; michaela.havrlentova@ucm.sk
[2] National Agricultural and Food Center - Research Institute of Plant Production, Bratislavská cesta 122, 921 68 Piešťany, Slovakia; michaela.havrlentova@nppc.sk
[3] Research and Breeding Station Vígľaš-Pstruša, National Agricultural and Food Center - Research Institute of Plant Production, Pstruša 334, 962 12 Detva, Slovakia

β-D-glucan

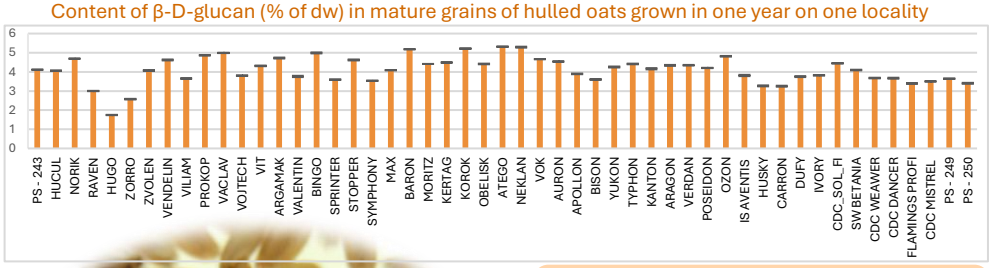
- cell wall homopolysaccharide
- selected *Poales*
- architectural function, source of energy, protection
- biological activity:
- ↓ glucose and cholesterol in blood serum
- ↑digestion, transport in gut



Content of β-D-glucan (% of dw) in mature grains of naked oats grown in one year on one locality

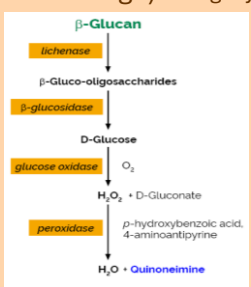


Content of β-D-glucan (% of dw) in mature grains of hulled oats grown in one year on one locality

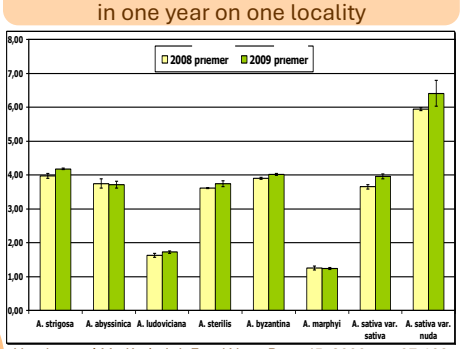


β-Glucan Assay Kit

(Mixed Linkage) - Megazyme

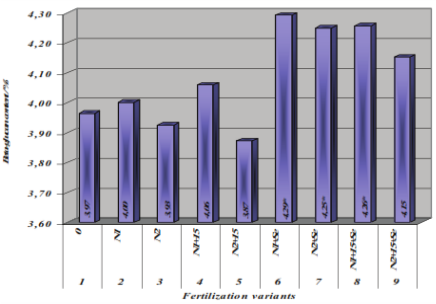


Content of β-D-glucan (% of dw) in mature grains of *Avena* species grown in one year on one locality



Havrlentová M., Kraic J. J. Food Nutr. Res., 45, 2006, pp. 97-103

The effect of fertilization on the average content of β-D-glucans (in %) in oats sown during two consecutive years.



1–control, 2 (N1)–47 kg/ha N, 3 (N2)–35 kg/ha N, 4–N1+15 kg/ha DAM390 (15), 5–N2+15, 6–N1+Se, 7–N2+Se, 8–N1+15+Se, 9–N2+15+Se DAM 390–application of N on leaves, Se in the form of Na2SeO4 5 g/ha

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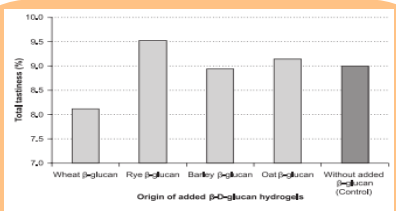

FIGURE 1. Total tastiness of wheat breads supplemented with β-D-glucan hydrocolloids extracted from different cereals.

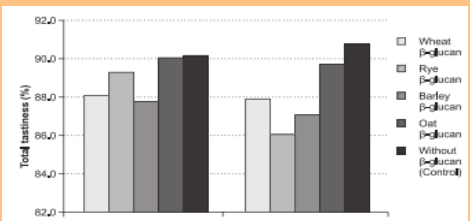

FIGURE 2. Total tastiness of ketchups supplemented with β-D-glucans extracted from different cereals added immediately after producing and after shelf-storage.

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control/wheat flour | wheat+5% oat bran | wheat+10% oat bran | wheat+15% oat bran

Mixed flours
5 – 15% of oat bran /oat flour/spouted grain+ wheat flour
Best results – 15% oat bran
↑β-D-glucan
↑total dietary fibre
↓starch
↓caloric value

Conclusions

Oat grain – good natural source (1.85-6.12%) of β-D-glucan, a cell wal polysaccharide with biological activity for humans
Genotype and environment (fertilisation N and N+Se, precipitation, soil quality, cultivation, biotic stress) influence the content
Hydrogels and grains (bran, flakes, flour) are good sources to ↑ nutritional value of the food product

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