

Glyconutrients with nutraceutical properties in milk of different bovine breeds Alessandra Crisa**Alessandra Crisa', Carmela Lovallo, Michela Conto', Salvatore Claps, Sebastiana Failla, Cinzia Marchitelli**

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Abstract

Milk sialyoligosaccharides (SOS) play an important role not only in brain development and increasing immunity in infants, but also in adults for the prebiotic action on the bacterial flora with the improvement of immune defenses and the intestinal microbiota. Sialic acid N-Acetylneuraminic acid (Neu5Ac) and N-Glycolylneuraminic acid (Neu5Gc) play a fundamental role in the protection of proteins from protease activity, cell-cell interactions, in the effector functions of IgG, and also have receptor functions. The MIQUALAT project aimed to improve the health image of bovine milk and to increase its use in nutrition so, the concentration of 3'-sialyllactose (3'-SL), 6'-sialyllactose (6'-SL), disialyllactose (DSL), Neu5Ac and Neu5Gc was analyzed in mature milk of different cow breeds. **Methodology & Theoretical Orientation:** The study was carried out in 4 breeds: Holstein (HO), Simmental x Holstein (SMxHO), Simmental (SM) reared in the CREA experimental farm and Podolica (POD) reared in Basilicata region. Milk samples of 25 animals for each breed were collected at 60 and 120 days of lactation. **Findings:** 3'-SL, 6'-SL and DSL were higher at 60 than at 120 days and in the POD relative to the other breeds ($P < 0.001$). Furthermore, statistically significant differences were found between breeds of the cross experimental farm. Neu5Ac and Neu5Gc were higher at 120 days ($p < 0,001$) and Pod had a lower Neu5Gc content than the other breeds at 60 and 120 days ($p < 0,001$). **Conclusion & Significance:** Results showed a significant effect of the breed on the SOS and sialic acids content which is more evident in autochthonous breeds. Genomic ongoing analyses will help the dairy industry to apply "precision breeding" scheme to handle "natural" milk with benefit on human health. **Acknowledgement:** this research was funded by MIPAAF in the national research project MIQUALAT (D.M. 16844/7100/2019).

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Glyconutrients are plant sugars linked in chains. The body breaks down these sugar chains into simple sugars. The most commonly used glyconutrients contain plant sugars

from aloe and larch arabinogalactan. People use these sugars to make medicine.

Glyconutrients are used for alcoholism, allergy, asthma, and many other conditions, but there is no good scientific evidence to support these uses.

Memory and thinking skills (cognitive function). Some early research shows that taking a glyconutrient supplement (Ambrotose Complex, Mannatech Inc.) for 12 weeks improves some parts of memory in middle-aged people. But taking a single glyconutrient supplement does not seem to improve memory in these people. However, taking a single dose of a glyconutrient supplement (Ambrotose Complex, Mannatech Inc.) might improve mental function in some college students.