

# Essay on effects of dietary arabinogalactan on the rheological properties of yogh...

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## **Effects of dietary Arabinogalactan on the rheological properties of yoghurt**

Rheological properties of the dairy products constitute a crucial index through which the quality of the dairy product is determined. Most of the consumers rely on the texture of the dairy products when deciding the best product to buy. Texture is related to the structure and microstructure of the product. Consequently, the knowledge of the rheological properties as well as compounds associated to the rheological properties is paramount. This report aims at analyzing the effect of Arabinogalactan on the rheological properties of yoghurt (Chronakis, 1997).

Yield stress is one of the measures used to examine the rheological properties of the dairy products. Products such as fiber increase the microstructure of the yoghurt and cheese and hence can lead to changes in the rheological properties. Arabinogalactan constitute one of the fibers that have a lot of impact on the rheological properties of the dairy products (Halmos, 1997).

In the experiment, it is apparent that the addition of Arabinogalactan increases the yield stress in the yoghurt samples. It is clear that addition of 0.8% of the Arabinogalactan resulted in a significant increase in the standard deviation. The results reveal that the yield stress increased from 87 to 90 in the day one. The yield stress also changes with the time. This is shown by the increase in stress level from 90 to 104. Additionally, addition of 1.2% of the Arabinogalactan increases the yield stress from 90 to 113 and 104 to 118 in day one and day seven respectively. From these observations,

it can be inferred that it can be inferred that addition of Arabinogalactan increases the yield stress (Pavia, et al 1999).

This supports the research done by Suwonsichon & Peleg (1999) which states that that the plant compounds such as peptidoglycans and Arabinogalactan increases the viscosity and hence the yield stress of the dairy products (Bullens, 1994).

The graphs in figure 2, 3 and 4 shows that the Arabinogalactan has significance effect on the viscosity properties of the yoghurt. The higher the percentage of the Arabinogalactan used, the greater the viscosity level of the yoghurt. It is likely that the structural arrangement of the Arabinogalactan must be responsible for the viscosity properties of the yoghurt. Several studies reveal that the Arabinogalactan increases the density of the yoghurt. A research conducted by Surowka (1997) reveals a close relationship between the Arabinogalactan and the viscosity of the yoghurt. In the study, Surowka claims that the Arabinogalactan is made up of meshwork of microstructures where the yoghurt particles can fix to and hence the viscosity yoghurt enriched with the Arabinogalactan is reduced (Breuil & Meullenet, 2000).

The yield stress is directly proportional to the viscosity of the product. The more viscous a product is the higher the yield stress. Yoghurt enriched with Arabinogalactan has relatively higher yield stress than non- enriched yoghurt. Yield stress is very important during the processing of the dairy products such as yoghurt and cheese. It constitutes one of the factors that

consumers consider. Consequently, most of the dairy industries utilize the fiber-like properties of Arabinogalactan to enhance the yield stress of the yoghurt and cheese in order to meet customers' needs.

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