

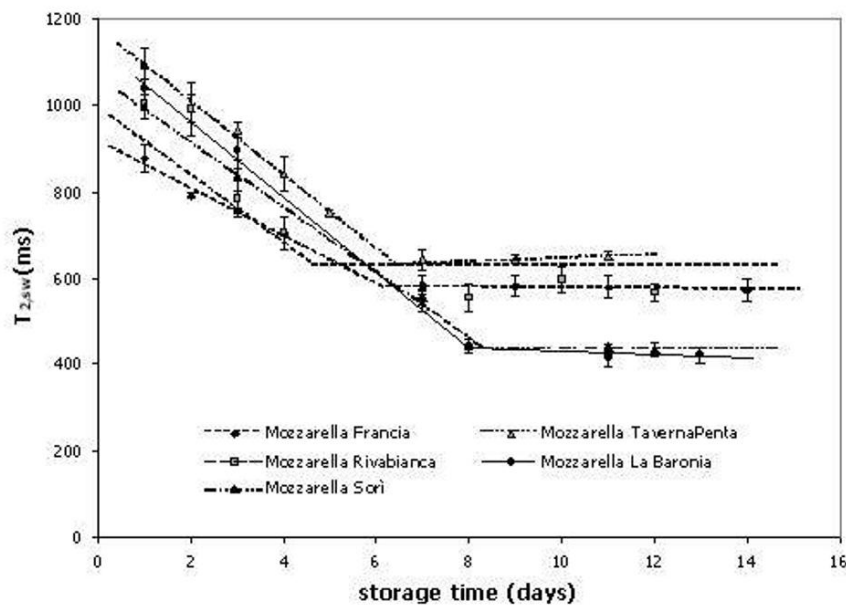
## NMR $T_2$ measurements to characterize PDO\* foods: *Mozzarella di Bufala Campana* cheese

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A low-resolution nuclear magnetic resonance (NMR) protocol to characterise the traditional Italian cheese Mozzarella di Bufala Campana is reported. Proton transverse magnetization decay curves were measured and analysed to investigate the state and distribution of water in different structural elements, resulting from the stretching process, of Mozzarella di Bufala Campana cheese.

The presence in the samples of four components namely "serum water", "entrapped water", "junction zone water" and "fat", characterised by different transverse relaxation times,  $T_2$  values were interpreted on the basis of the diffusive and chemical exchange model that allowed obtaining information on diffusive domains size and dynamics of water molecules. Furthermore,  $T_2$  values were measured as a function of aging time of Mozzarella samples. A decrease of "serum water"  $T_2$  value with aging time was found and that can be used to monitor the evolution of PDO Mozzarella di Bufala Campana cheese.



*Changes in serum water  $T_2$  values of Mozzarella di Bufala Campana commercial samples from different cheese-makers during storage time at 8°C. Lines are guides to eyes only.*

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