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## Impact of polyphenol addition on the total phenolic content and antioxidant capacity of acidified milk gels

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Recently, several studies have examined the effect of dairy proteins on the total phenolic content (TPC) and antioxidant capacity (AC) of polyphenol rich foods. However, the impact of processing conditions on these properties is not fully understood. The objective of this study was to determine the impact of inclusion of polyphenols in milk prior to acidified milk gel production. A heat treatment, typically used in yoghurt manufacture (85°C for 30 min) was applied to pasteurised skimmed milk. Four sources of phenolic compounds (green tea, white grape, tannic acid, gallic acid) were then incorporated into either the heated or non-heat treated milk samples (1 mg ml<sup>-1</sup> (v/v)). Acidified milk gels were produced from the heat treated milk samples using 2.1% GDL at 30°C for 3 hours. The milk samples and gels (n=45) were also analysed for TPC and AC in triplicate. As expected TPC and AC of the acid gels containing polyphenols were all significantly higher than the control gel which contained no PP ( $P<0.05$ ). However, TPC and AC of the gelled samples were significantly lower ( $p<0.01$ ) than the ungelled milk samples. The reason might be that polyphenols are very tightly bound and acid coagulation reduced the level of extractable polyphenols. Non-heat treated milk had no effect of TPC and AC of milk-polyphenol (MP) mixtures except tannic acid whereas heated milk sample significantly decreased TPC and AC of MP mixtures except TPC of gallic acid sample. This research can facilitate optimisation of processing conditions to maximise the nutritional content of dairy products.

### Biography

Mukaddes Kilic Bayraktar is pursuing his PhD in the University of Reading in Food and Nutritional Sciences as scholarship student from Turkey Ministry of Education. He completed his master's education at same University and department. His research is related to incorporation of polyphenols in dairy products and examines the effects of processing conditions on their phenolic content and functional properties of milk proteins.

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