

## **Effect of *Spirulina* spp. supplementation in heat stressed dairy cows' ration on milk fatty acid profile**

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Heat stress conditions are directly associated with a decline of overall production performance and specifically milk yield in dairy cows. Additionally, exposure to heat stress strongly modifies milk quality, altering its fatty acid profile. Different strategies regarding nutritional manipulations are proposed in order to ameliorate the negative effects of heat stress on production. This study attempted to estimate the effect of *Spirulina* sp. -a microalga, rich in proteins, vitamins and polyunsaturated fatty acids-supplementation in dairy cows' ration, during heat stress, on milk fatty acid profile. The trial was undertaken in a commercial farm in Northern Greece. Twelve heat stressed (average T.H.I.=73,86±0,042) Holstein cows in early lactation were assigned to 2 groups (Controls-C, n=6 and *Spirulina*-S, n=6). Controls were fed a standard ration and S group consumed an extra 100g of *Spirulina* powder, daily for 61 days during June and July 2015. Milk was sampled on days 0, 31 and 61 and fatty acid (FA) composition was determined by gas chromatography. Saturated FA (SFA) (C6:0-C15:0) in the controls increased significantly ( $P\leq 0.05$ ) between samplings. On the contrary, in S group, unsaturated FA C16:1 and C18:1 increased significantly ( $P\leq 0.05$ ) between samplings. Moreover, polyunsaturated FA:SFA ratio increased significantly ( $P\leq 0.05$ ) between 1st and 3rd sampling (1st:0.038±0.004 to 3rd:0.072±0.016) in S group. *Spirulina* powder supplementation enhances heat stressed cow milk with health-associated unsaturated FA, an observation that requires further investigation. This research project was funded under the Action 'Research&Technology Development Innovation Projects'-AgroETAK, MIS453350, in the framework of the Operational Program 'Human Resources Development'. It was co-funded by the European Social Fund through the National Strategic Reference Framework (Research Funding Program 2007-2013) coordinated by the Hellenic Agricultural Organization-DEMETER.

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