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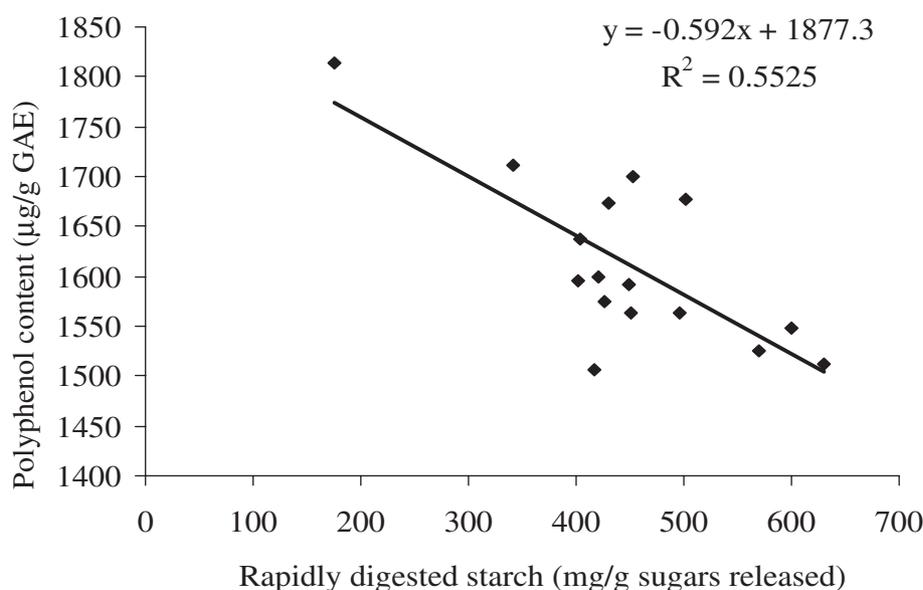
Influence of polyphenols on *in vitro* starch digestibility of oat porridges

P. S. Thondre, L. Ryan and C. J. K. Henry

Functional Food Centre, School of Life Sciences, Oxford Brookes University, Gypsy Lane, Headington, Oxford OX3 0BP, UK

Polyphenols were found responsible for reduced glycaemic response to carbohydrate foods, especially legumes⁽¹⁾. The objective of the present study was to investigate the effect of polyphenols in oat porridges on their *in vitro* digestibility. Oats have gained considerable attention in recent years as a good source of soluble fibre, antioxidants such as vitamin E, various phenolic compounds and avenan-thramides⁽²⁾. The main source of oats in the UK diet is breakfast cereals representing more than 60% of oat products sold. Sixteen commercially available oat porridges were subjected to *in vitro* digestion⁽³⁾. The amount of rapidly digested starch (RDS) was measured in the samples drawn before digestion, at the end of gastric phase and after 20, 60, 120 and 180 min during intestinal phase⁽⁴⁾. Polyphenol contents of oat porridges were measured by the Folin–Ciocalteu method⁽⁵⁾ and expressed as gallic acid equivalents (GAE).

All the oat porridges had significant amounts of polyphenols ranging from 1500 to 1850 µg/g GAE. The oatmeal of Alford (Montgarrie Mill, Alford, Scotland) showed significantly higher polyphenol content than the others ($P < 0.05$). The oat porridges varied in their digestibility. There was a significant ($P < 0.01$) negative correlation between the polyphenol content and RDS ($r = -0.743$) as shown in this figure. There was no significant correlation between the amount of fibre present in the oat porridges and starch digestibility.



The results presented demonstrate a possible interaction between starch and polyphenols in the oat porridges thereby slowing down the starch digestibility. Another possible mechanism is the interaction between amylase and polyphenols that might have reduced starch digestibility. So far, the beneficial effects of oats porridges on glycaemic response have been attributed to their fibre content, especially β -glucan⁽⁶⁾. This is the first study that reports the effect of polyphenols on starch digestibility of oat porridges. In conclusion, polyphenol content could have potential effect on glycaemic response to oat porridges *in vivo*.

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