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## DEVELOPMENT OF FUNCTIONAL FOOD PRODUCTS FROM BREWERY SPENT GRAIN RECOVERY

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**F**ood industry production is among the biggest human environmental impacting activities, generating an unsustainable system with a multitude of climate impacts on society that need to be addressed. In particular, the brewing industry generates large quantities of waste products, among which, the most abundant is the brewery spent grain (BSG), the residue left after separation of the wort during the brewing process. Despite its high value nutritional composition, nowadays BSG is mainly used as animal feed and landfilled. The idea of the project BreweReuse ([www.eatcircular.com](http://www.eatcircular.com)), one of the winner projects of the Climate-KIC's Greenhouse Programme 2017, was to valorize BSG, starting from a pilot brewery, by using it in formulation for functional products. In particular recipes of cereal bars were developed, testing three increasing percentage of BSG addition, in comparison to a control without BSG. Two different binding systems were also tested: one containing honey, sugar syrup and margarine and another, more complex, containing chocolate, milk powder, sugar, margarine, sunflower oil and cornflour. Analysis of texture, color, water content and water activity were performed on each of the formulated bars, and during a period of 20 days, to control the main modifications occurring during the first period of storage. A sensory measurement of the cereal bars was also performed, to examine their interrelationship for product differentiation and to explore how the role of information about such 'sustainable snack' drives consumers' expectations and actual perceived taste quality. The results of the current research will be exposed, giving more insights on the recycling of the brewery spent grain field and the relative by-food product formulations to achieve a better sustainability of the whole sector.

### Biography

Maria Paciulli has completed her MSc and PhD in Food Science and Technology at University of Parma, Italy. She is currently post-doc in the Department of Food and Drug of the same University, in the area of Food Technology. Her research activity primarily focuses on the investigation of the effect of processing and formulation of the physico-chemical and thermal properties and stability of food products, with a particular focus on oil and fats, bakery products and vegetables. She is author of 24 papers in reputed journals and 3 book chapters. She participated in several national or international conferences.

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