

Does pearling process concentrate β -Glucans in barley grain?

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INTRODUCTION

Dietary fibres are increasingly used in the Western diet due to for example their lower carbohydrate intake or their hypocholesterolemic action and preventive effects against colon's infections and diseases.

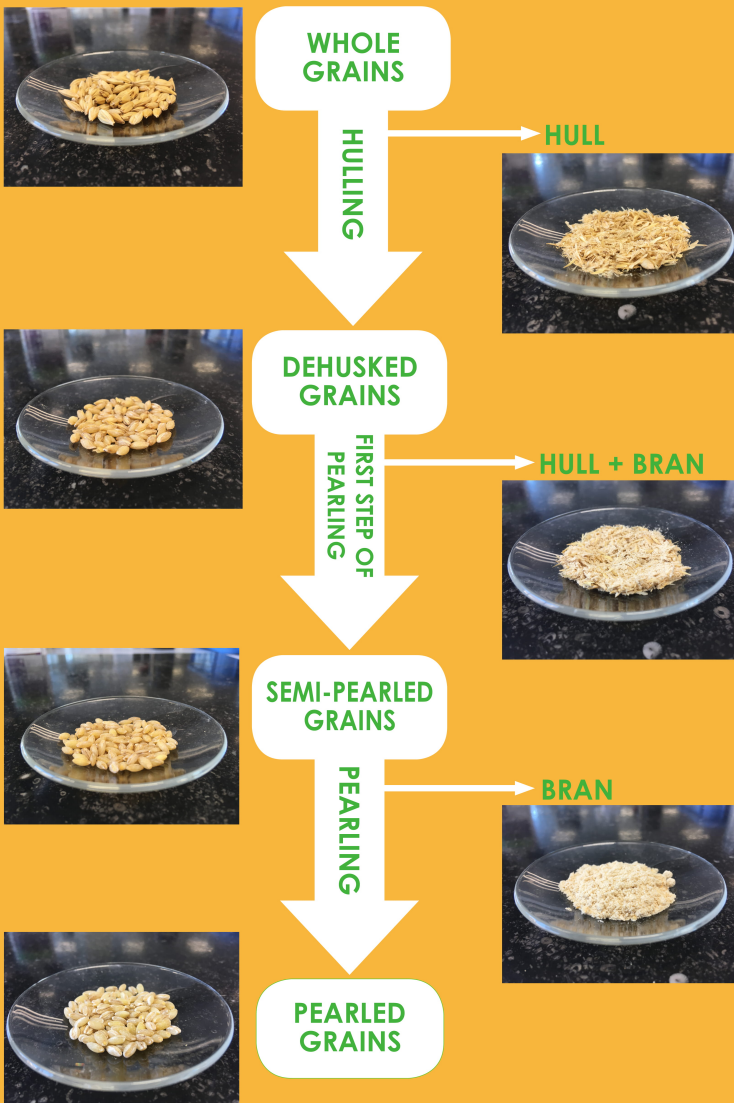
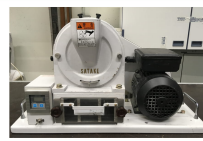
β -glucans, a soluble dietary fibre found in different cereals (mainly in oat and barley), consist of glucose units linked by β 1-3 bonds and β 1-4. In contrary to starch, linked by α 1-4 and α 1-6 bonds, β -glucans are less degraded during gastric and ileal phases of digestion, inducing less increase of glycaemic index during the post-prandial phase of digestion. As they are not hydrolysed by digestive enzymes, β -glucans are fermentable substrates for the microbiome implanted in the colon of monogastrics and contribute to the production of short-chain fatty acids, useful for the regeneration of cells lining the walls of the colon. The aim of this study was to develop the barley grain fractionation process, in order to isolate fractions, with higher amounts in β -glucans, by isolation of grain subcomponents where these polysaccharides are preferentially stored; this fraction willing to be used as a health ingredient according to the EFSA advice that allow to mention an hypocholesterol effect for barley's beta-glucans.

EXPERIMENTATION

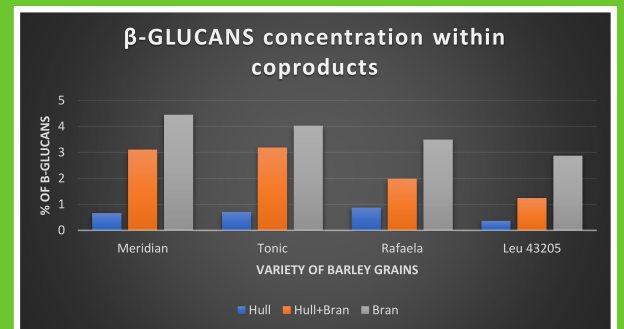
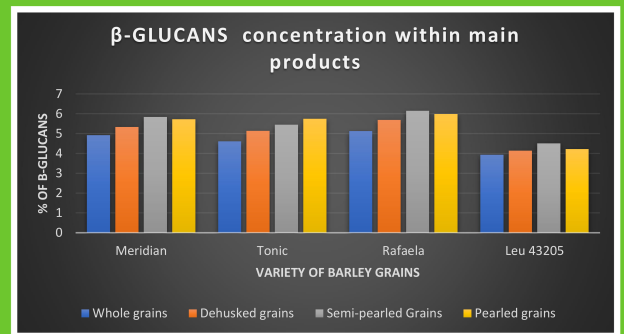
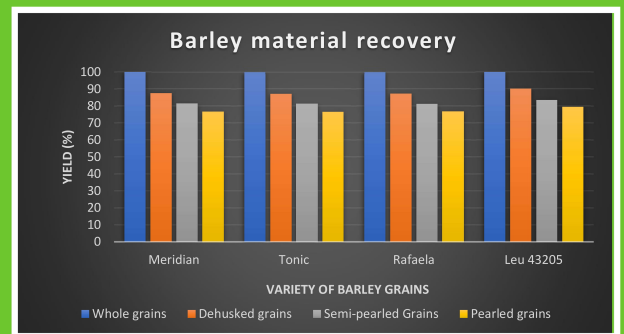
MATERIAL :

SATAKE Huller TM05C

MEGAZYME β -glucans assay Kits



RESULTS



CONCLUSION

This experimental process allows to demonstrate that β -glucans are heterogeneously distributed through the different tissues of the barley grain. Indeed, it was found that the lowest concentration in β -glucans is present first in the husk and then in the bran. In view of this results, we can deduce that pearled grains have an higher level in β -glucans than the whole barley grains. Pearled barley could thus be part of dietary meal to fight too high rate of bad cholesterol in blood.