Influence of extraction solvents on the recovery of antioxidant phenolic compounds from brewer’s spent grains - DTU Orbit (07/02/2019)

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This study evaluated the efficacy of different solvents (methanol, ethanol, acetone, hexane, ethyl acetate, water, methanol:water mixtures, ethanol:water mixtures, and acetone:water mixtures) for extracting antioxidant phenolic compounds from brewer’s spent grains (BSGs). The extracts were characterized regarding the contents of total phenols, flavonoids, proteins and reducing sugars. Antioxidant activity was determined by the 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical, and the ferric reducing antioxidant power (FRAP) assay. The solvents had different efficiencies for extraction of antioxidant phenolic compounds. All the produced extracts showed antioxidant activity, but the extract produced with 60% v/v acetone had the most elevated content of total phenols and antioxidant potential by the two methods. BSG was demonstrated to be a valuable source of antioxidant phenolic compounds, and solid-to-liquid extraction using 60% v/v acetone was a low cost and quite efficient method to recover these value-added compounds.

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