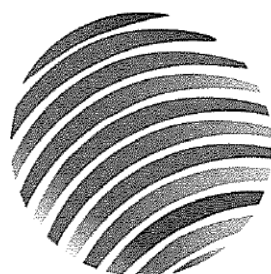




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IN NUTRITION & HEALTH

ISBN: 978-2-35609-073-7

COMPARISON OF DIFFERENT EXTRACTION SOLVENTS ON THE RECOVERY OF POLYPHENOLS FROM COCOA BEAN SHELLS AND EVALUATION OF THE FREE RADICAL-SCAVENGING ACTIVITY

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Cocoa bean shells is one of the main by-products of the cocoa roasting process, which represents 20% of total weight after the husking and grinding¹. The aim of this work was to establish an easily applicable extraction method that allowed an efficient recovery of polyphenols from the cocoa by-product and evaluate the antioxidant activity of the extracts potentially useful as food additives. The extraction was carried out employing different mixtures of solvents with constant stirring at room temperature. The extraction yield was determined gravimetrically, the total phenolic content was determined by the Folin-Ciocalteu assay and the antioxidant activity was measured by the DPPH radical scavenging test. The results outlined that two solid-liquid extractions (1:20 (w/v)) for 1h each at room temperature with ethanol:water pH3 (70:30) yielded the highest amount of extract (138.3 g of extract/ Kg of cocoa skin), with the highest content of phenolic compounds (11.7 mg GAE/ g of cocoa skin) and which exhibited the highest antioxidant activity (EC₅₀= 2 g/L). This cocoa by-product may be a promising source of natural antioxidants to replace the synthetic antioxidants currently used in the food industry and the identified extraction technique could be easily replicable on an industrial scale.

1. *International Cocoa Organization (ICCO)*