Recovery of polyphenols from spent coffee grounds by extraction

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Consumption of coffee is steadily increasing as a favorite food for people all over the world and the amount of spent coffee grounds (SCGs) estimated from the amount of coffee consumption is also increasing. Therefore, it is necessary to take measures for recycling the coffee waste. The SCGs contain a high content of polyphenols with the ability of active oxygen elimination, whitening in skin aesthetics, extended life, and antibacterial and anti-inflammatory properties. The aim of this study is to develop an environment-friendly agent for extraction of polyphenol, which is an effective ingredient in the SCGs that are thrown away as waste. Ethanol is one of the most commonly used solvents for organic material extraction. In this study, polyphenol was extracted using aqueous ethanol solution as a solvent. The extracted polyphenols were quantitatively measured by UV-vis using a Folin-Ciocalteu reagent method. The effects of solid-liquid ratio, temperature, and extraction time were investigated to determine optimal operation conditions.