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Brown beer vinegar–profiling its phenolic content and antioxidant activity

Teodora Emilia Coldea, Mudura Elena, Salanta Liana, Pop Carmen and **Pop Oana**
University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania

Vinegar is one of the fermented beverages used by consumers in their daily diet as flavoring agent, as a preservative or as a healthy drink. Beer vinegar is made by two steps involving yeast for alcoholic fermentation, followed by acetic acid bacteria for acetic fermentation. Despite its using as a flavoring agent, beer vinegar was proved to have multiple health benefits. In our previous study, we developed a functional, enriched in polyphenols brown beer vinegar. Beer and resulted vinegar were tested by comparison in respect to their phenolic profiles and antioxidant activity. The HPLC-DAD-ESI (+) MS analysis revealed the presence of 30 phenolic compounds. Phenolic compounds data identification was carried out based on UV spectra of each compound. Based on calibration curve (R2=0.9985), the amounts of phenolic compounds were calculated, expressed as mg catechin equivalents (CE)/L. Total phenolic content of beer and vinegar samples determined using Folin-Ciocalteu reagent were of 428.9±1.58 mg GAE/L, and 661.5±7.69 mg GAE/L, respectively, which contributed to a high antioxidant activity in vinegar sample of 82.18%. Statistically, significant differences were observed after acetic fermentation between each parameter ($p<0.05$). Brown beer vinegar represents a rich source of polyphenols and phenolic derivatives, compared to beer. By its increased phenolic content, antioxidant activity and the presence of prenylflavonoids, brown beer vinegar can be considered a valuable source of bioactive compounds, which could be of interest also in special diets.

teodora.coldea@usamvcluj.ro

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