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Novel source of prenylflavonoids resulted by the bioconversion of beer

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Prenylflavonoids come from hops and are recognized for their various benefits (antioxidant, anticarcinogen, and antimicrobial, estrogenic, efficient in osteoporosis, anti-inflammatory, antiviral) to our organism through moderate beer consumption. The amount of prenylflavonoids found in beer varies depending on multiple factors such as raw material quality, hop dosage in wort, wort composition and boiling parameters. During alcoholic fermentation and beer conditioning, the concentration in prenylflavonoids is considerably reduced due to their adherence on yeast cell walls. Additionally, the sources of prenylflavonoids are limited to beer and several hop-based products. Beer vinegar represents an innovative alternative of prenylflavonoids. Our researches focused the traceability of the most important classes of polyphenols, including important amounts of prenylflavonoids, from beer, through acetic fermentation, to vinegar. Beer vinegar is made by two steps involving yeast for alcoholic fermentation, followed by acetic acid bacteria for acetic fermentation. 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. 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 ($p < 0.05$).

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