STUDY OF THE COMPARATIVE EXTRACTION OF PHENOLIC COMPOUNDS WITH BIOLOGICAL ACTIVITY FROM POMACE OF FETEASCA NEAGRĂ GRAPES

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Pomace is a potential source of various chemicals (polyphenols, including natural pigments), nutrients (seed oil, pomace flour as an additive in various products), dietary fiber with valuable nutritional properties. The content of phenolic substances in fermented pomace from red grapes depends on varietal peculiarities, pedo-climatic conditions, applied agrotechnics, grape harvest season, vinification technology (maceration temperature, duration of juice contact with solids, yeast strains used for alcoholic fermentation, etc.). The biggest impact in the extraction of the components from grapes in wine is due to the thermal maceration process. Thus, the processing of *Feteasca Neagră* grapes of various origins and by different technologies has shown that thermal maceration can ensure a superior extraction of anthocyanins compared to traditional maceration, maceration in rotary wineries and carbonic maceration.

This research is focused on the extraction of phenolic substances from the fermented pomace of *Feteasca Neagră* from 6 wine producers from all wine producing areas of the Republic of Moldova - Bugeac (FN-B), Hâncești (FN-H), Leova (FN-L), Nisporeni (FN-N), Purcari (FN-P) and Speia (FN-S).

All batches of the pomace belong to the fermented category. The raw material was dried at 60 ^{o}C in ovens with forced air circulation to a constant mass, comparable to the values obtained at 105 ^{o}C. The dried pomace was crushed to a particle size of 1-2 mm. In order to avoid thermal degradation of thermolabile substances and to reduce the risk of oxidation in the extraction process, they were made at room temperature.

Several solvent mixtures were used for the extraction of phenolic compounds from pomace: Water (Aq), acidified 12% ethanolic solution with pH 3.2 (Et-12), ethanol-water mix, 1/1, v/v (Et-50), methanol-water 3/1, v/v, (Met-75). The methanolic solvent was selected for analytical purposes only, but proves to be as one of the most efficient. In water and Et-12 the extraction procedure was slow and low yielding. Much more efficient the extraction took place in Et-50 and Met-75. The color of the extracted pigments can be quantified by global parameters (Color Intensity, IC, hue, Red-Yellow-Blue color quota), color parameters in X, Y, Z coordinates (RGB color space), Brightness, Red-Green and Yellow-Blue color balance respectively, according to CIELab. These parameters were determined for all extracts.

Deep oxidation of the phenolic complex in FN-B and FN-N samples was confirmed spectrophotometrically. It has been shown that the quantities of flavonoid, cinnamic and anthocyanin substances, extracted under identical conditions, differ to a large extent and depend on the fermentation process applied by the manufacturer. Extraction in "green" solvent - Et-50 is recommended, which demonstrates high yields and allows full recovery of ethanol for cyclic use.

Keywords*: bioflavonoids, cinnamates, anthocyanins, oxidation, spectrophotometry, CIELab.*

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