X-RAY PHASE ANALYSIS OF DASHNOBAD POMEGRANATE REPROCESSED EXTRACT

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Introduction

Human beings have cultivated pomegranate (*Punica granatum* L.) for its medicinal and nutritious properties for over 4000 years. Pomegranate fruit with 2.5–three million tons of annual global production is used to manufacture a wide range of food products such as fruit juice, concentrate, anardana, jam, candies, toppings, and canned arils besides its fresh consumption [1]. Pomegranate juice is a polyphenol-rich fruit juice with high antioxidant capacity[2]. The fruit contains around 50–52% arils and 48–50% peel, pith, and carpellary membrane. Each part of the fruit contains various phytochemicals, viz. ellagitannin, gallotannins, ellagic acid, catechins, and anthocyanins. Bioactive components from pomegranate can control coronary heart disease and cancer and perform anti-inflammatory activities[3]. There are many ways to take extract from pomegranate, such as: powder extract (PRP), pomegranate juice (PJ), and pomegranate seed powder extract (PSP) was evaluated in raw ground pork meat stored at 4±1°C for 12 days. The pH values decreased from 5.88 to 5.61. The standard plate count in the PRP group was significantly (p<0.05) lower than that in all other groups[4]. Pulsed ultrasound-assisted extraction, using just water as solvent, and spray-drying microdispersion, using low methoxyl pectin as polymeric matrix, have been employed, respectively, to extract and formulate the water-soluble bioactive molecules from these by-products. From 100 g of pomegranate fresh marcs, almost the same quantity of phenolic compounds found in 100 mL of the corresponding juice can be extracted with similar antioxidant activity, but with higher content in vitamin C and practically without total soluble solids. The extracts have been sprayed obtaining powders with an encapsulation efficiency of about 50%. Finally, fresh-cut apple wedges were enriched by vacuum impregnation with the formulated extracts,

tentatively used as potential novel ingredients, obtaining "polyphenol-enriched" apples[5].

Experimental part

Preparation of sample. Pomegranate fruit, a variety of " Dashnabod", was collected from a local market in the south of Uzbekistan (Termiz). Peels were separated manually from the fruit. Fresh peels were reduced to the desired size and immediately used. Another part of the peels was dried in the air Drying and sterilization cabinet «SHSS-80p » until reaching a constant moisture content of 8%. Dried pomegranate peels were then, ground to the desired particle size. Particle size distribution was performed on 250 g of washed, dried, and crushed pomegranate peels using a Moulinex grinder (model ME2B, 800 W). Crushed pomegranate peels were passed through 11 sieves type AFNOR from 0.08 to 6.3 mm. The retained fraction of particle size was weighted to define the particle distribution.

Results and discussion

Tannin extraction depends on many parameters such as raw material propriety, temperature, pH, contact time, particle size and solvent. To optimize extraction parameters, spectrophotometric measurement were carried out on PGP extract. To measure the absorbance of each extract obtained, the maximum wavelength was first determined. The curve below gives the maximum wavelength of PGP extract. This spectrum shows that the maximum wavelength of the pomegranate extract is around 363 nm (Fig.2).

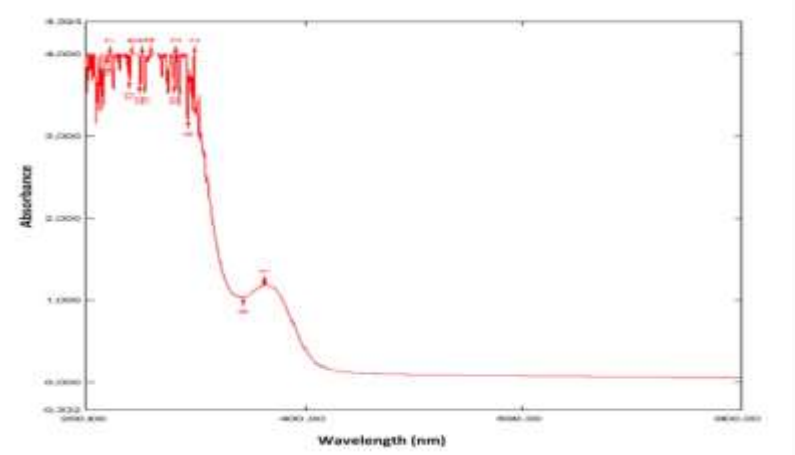

Fig. 2. Absorption spectrum of pomegranate extract

At this value of the wavelength, the absorbance of all the samples was measured.

Conclusion. In this study, tannin substance was extracted from the secondary waste of "Dashnobad" pomegranate grown in Sherabad district of Surkhandarya region. X-ray absorption spectra analysis was analyzed of extraction pomegranate.

References

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