

Antibacterial and Antioxidant Properties of Colorant Extracted from Red Onion Skin

Sara Moosazadi¹, Peyman Ghajarbeigi², Razzagh Mahmoudi^{*3}, Saeed Shahsavari⁴, Roghayeh Vahidi⁵, Ali Soltani⁶
¹MSc Student of Food safety and Hygiene, Faculty of public Health, Qazvin University of Medical Sciences, Qazvin, Iran

²Health products safety research Center, Qazvin University of Medical sciences, Qazvin, Iran

³Professor, Medical Microbiology Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

⁴Instructor of Biostatistics, Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

⁵Msc of Food Industrial Engineering, Food Quality Control Laboratory, Qazvin University of Medical Sciences, Qazvin, Iran

⁶Msc of Organic Chemistry, Food Quality Control Laboratory, Qazvin University of Medical Sciences, Qazvin, Iran

^{*}Msc of Organic Chemistry, Food Quality Control Laboratory, Qazvin University of Medical Sciences, Qazvin, Iran

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ABSTRACT: Due to the abundance and cheapness of red onion skin scrubs and its high consumption in Iran, we decided to evaluate its antioxidant and antimicrobial properties as a natural source of anthocyanin. The onion skin was collected from the Qazvin local market. Extraction was carried out using water and glycerol. The total anthocyanin concentration was determined by pH-differential method. MIC and MBC were determined using microdilution method and diameter of the bacteria inhibition zone by disc diffusion method on extracted color from Onion skin against *Staphylococcus aureus* and *Escherichia coli* strains. The antioxidant activity was determined by measuring the 2,2- diphenyl-1-picrylhydrazyl(DPPH) and total phenol content by the Folin Ciocalteu. The mean total anthocyanin concentration at 40°C was (60.67, 8.4) mg/g. The highest and the lowest mean diameter of the non-growth zones of the extracted colorant in *Staphylococcus aureus* was 0/83±0/14 and 0/4±0/17 and in the *E. coli* 0/9±0/22 and 0/5±0/20 respectively. Inhibitory concentration of 50% (IC50) in the extracted colorant was obtained at 14/718±0/20 mg / ml. The total phenolic content was obtained as an average of 114.326±2/36 mg/g of gallic acid per gram of onion powder. According to the results of the study and the high consumption of onions in various types of household foods and as a result of increasing their waste, antioxidant and antimicrobial properties, in addition to coloring, can be used as a cheap dye source in various food industries.

KEYWORDS : Red onion Skin; Natural Colorant; Antioxidant; Antibiotics; Antimicrobial