



## DETERMINATION OF ANTIBACTERIAL EFFECTS OF PEEL POWDERS OBTAINED FROM ZIVZIK POMEGRANATE GROWN IN SOUTHEAST TÜRKİYE AGAINST SOME PATHOGENIC BACTERIA

Bulent Hallac<sup>1</sup>, Osman Kilincceker<sup>2✉</sup>

<sup>1</sup>Siirt University, Faculty of Engineering, Department of Food Engineering, 56100, Siirt, Türkiye.

<sup>2</sup>Adiyaman University, Vocational School of Technical Sciences, Department of Food Processing, 02040, Adiyaman, Türkiye.

✉[okilincceker@adiyaman.edu.tr](mailto:okilincceker@adiyaman.edu.tr)

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### ABSTRACT

In this study, the antibacterial effects of peels obtained from Zivzik pomegranate against *Staphylococcus aureus*, *Escherichia coli*, *Bacillus cereus*, *Enterococcus faecalis*, and *Pseudomonas aeruginosa* were investigated. The pomegranate peel was ground into powder form and their control (0%), 2%, 4% and 8% solutions were prepared, and firstly pH, Oxidation/Reduction (O/R) and electrical conductivity (EC) values were measured. Then, these bacteria were inoculated with selected standard antibiotics according to the disc diffusion method and with pomegranate peel powder according to the well/hole method and the zone diameters formed because of incubation were determined. In addition, the counts of bacteria formed after incubation was determined by inoculating these bacteria and each peel solution on special media. In analyses, the pH value of the 0% concentration solution was determined as 5.96, O/R value 83.17 mV and EC value 0.13  $\mu\text{S cm}^{-1}$ . However, the pH decreased to 3.7 in the 8% concentration solution, O/R and EC also increased to 195.67 mV and 0.42  $\mu\text{S cm}^{-1}$ , respectively. These changes increased the antibacterial effect of solutions prepared from pomegranate peel powder. Pomegranate peel solutions showed similar effects to most of the standard antibiotics used. Also, by influencing the numbers of bacteria used, especially the 8% solution provided about 1.5-2 log reduction compared to the control. Consequently, while it was determined that 4% and 8% solutions of the powders obtained from this pomegranate peel could be used against these bacteria, it was understood that it would be beneficial for the food industry to conduct research against different microorganisms.