# THE EFFECT OF THE MOLECULAR WEIGHT OF PECTIN ON THE GROWTH OF PROBIOTIC STRAINS

Probiotic consumption has become immensely popular due to its potential health benefits. To be effective, probiotics need the presence of prebiotics, which promote their growth and viability. Yet different probiotics favor different substrates because of their capability to execute various types of enzymes. Molecular weight (Mw) is among the many factors that affect the utilization of prebiotics by probiotics. This study investigated the impact of the Mw of pectin – a complex polysaccharide found in various plant sources that has been recognized as a potential prebiotic – on the growth of three widely used probiotic strains: *Lactobacillus rhamnoses*, Lactobacillus plantarum, and *Bifidobacterium bifidum*. Pectinase was used to hydrolyze pectin into different Mw fractions, ranging from $10^3$ to $10^6$ (Dalton). The fractionations after enzyme treatment were collected by precipitation in 70% EtOH, followed by drying at fume hood. Pectin fractions at various concentrations were used to treat the probiotic strains. The results showed that the fractions with a smaller Mw were better at promoting the growth of all probiotic strains. The smaller-Mw pectin resulted in a less viscous solution, enhancing the mobility of the enzymes and thus their ability to work on the molecules. These findings offer insights that may be valuable for the development of novel synbiotic products that could ultimately promote gut health and overall well-being.

KEYWORDS: Pectin, Molecular Weight, Probiotics