

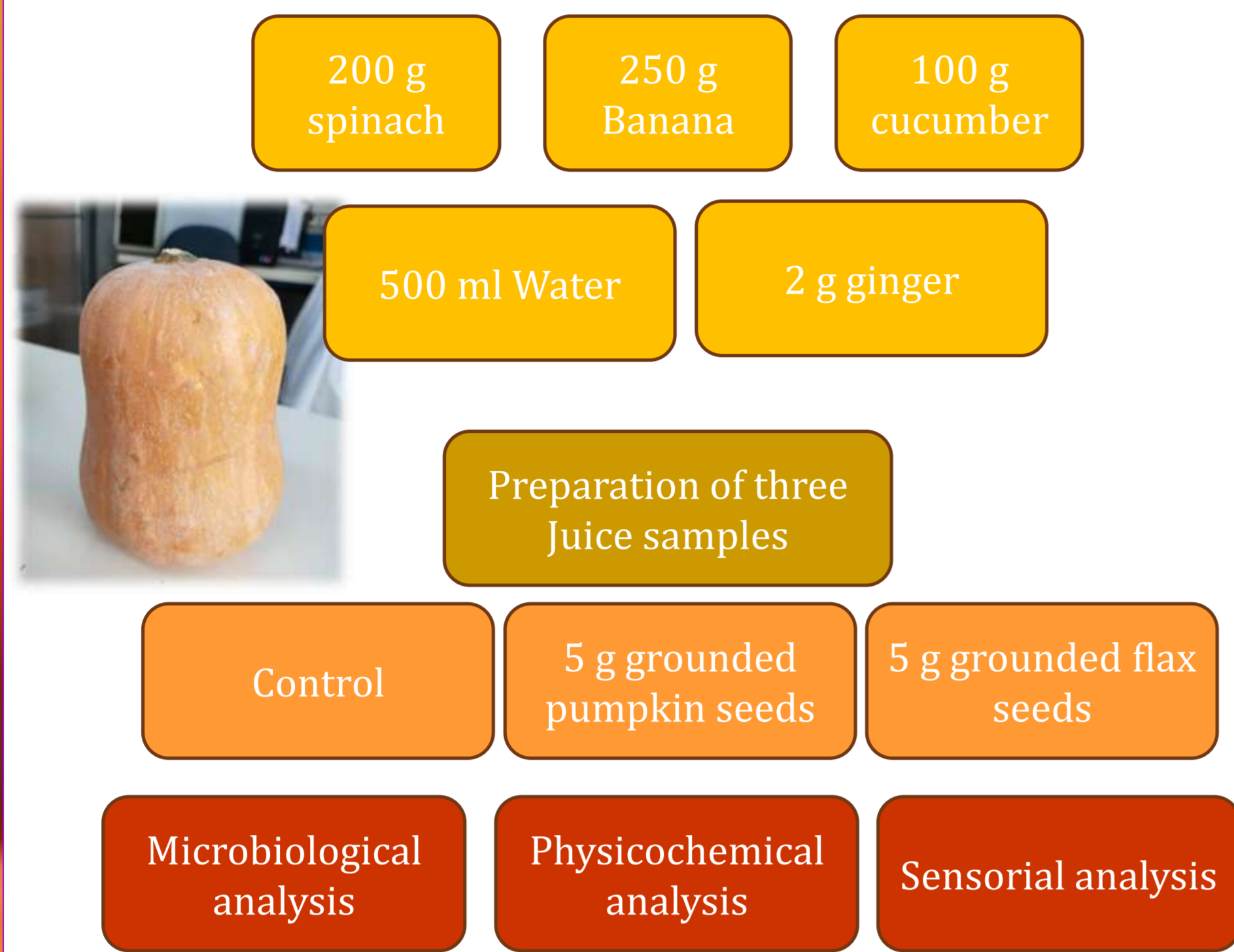
DEVELOPMENT OF A NUTRITIOUS BEVERAGE UTILIZING PUMPKIN BY-PRODUCT



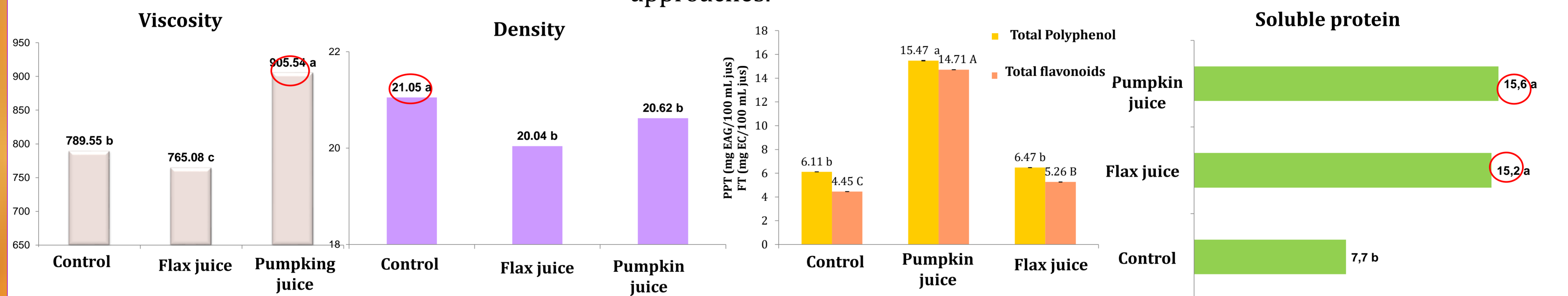
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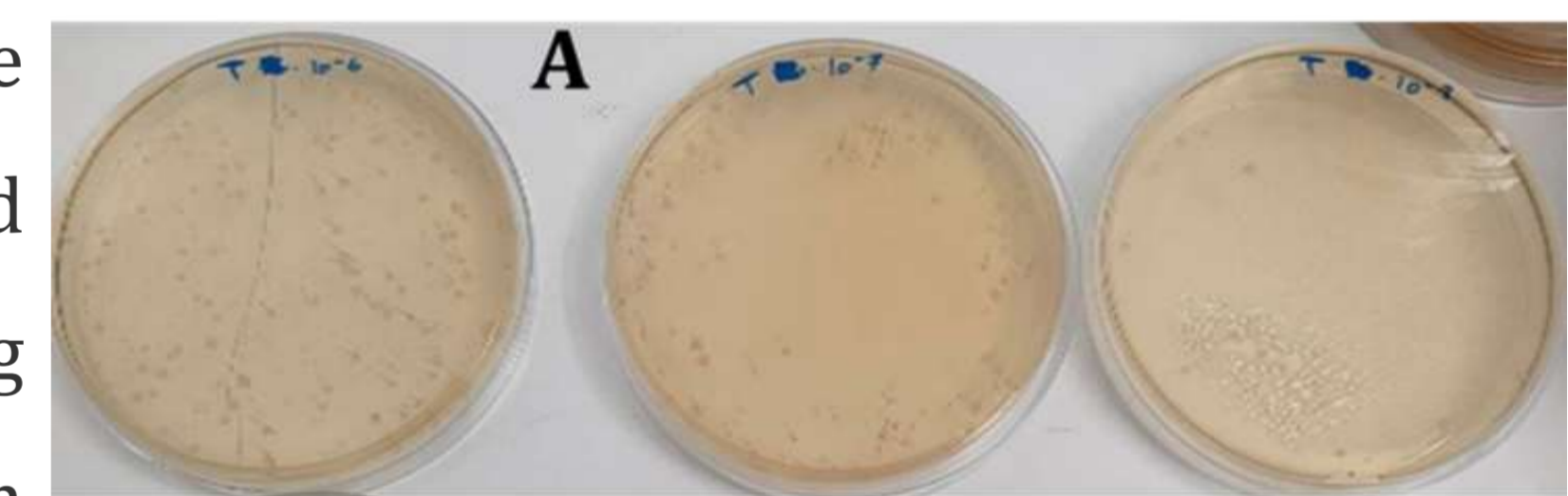
Background: Incorporating a healthful beverage enriched with particular seeds into one's dietary regimen holds pivotal promise in averting malnutrition and mitigating a range of afflictions. Noteworthy for their versatile therapeutic attributes, pumpkin seeds, classified under the cucurbitaceae family, emerge as a valuable botanical resource.



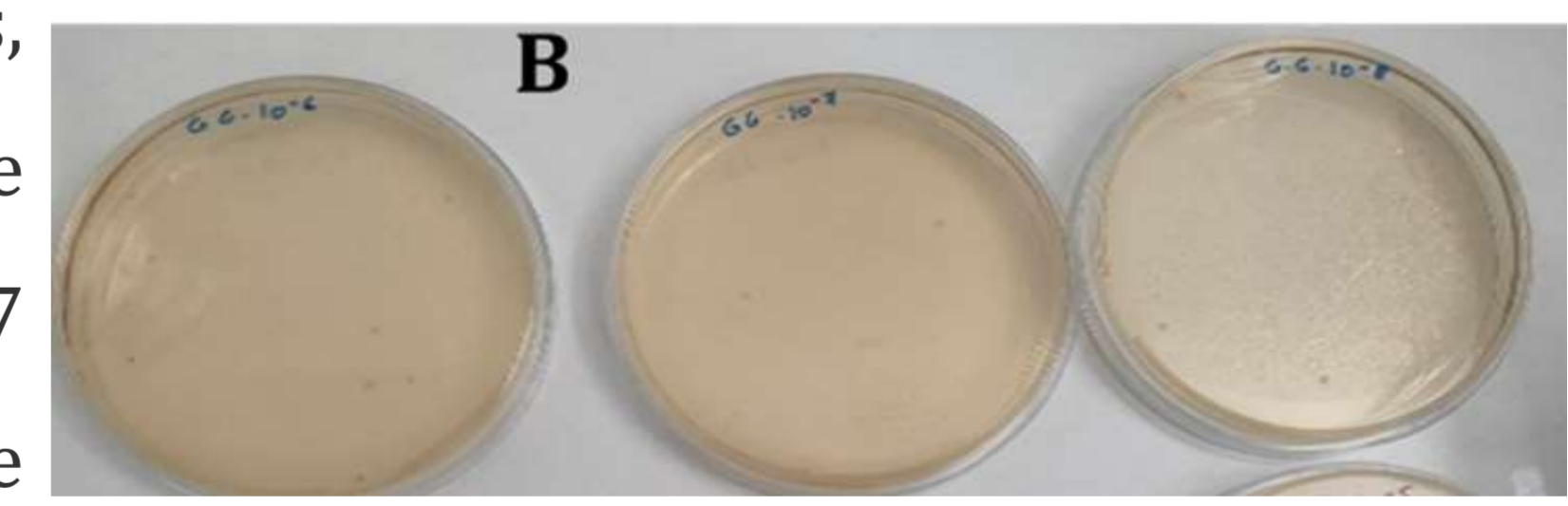
Materials/Methods: This inquiry embarked on the formulation of a nutritious juice, enhanced with either pumpkin seeds or flax seeds, followed by a rigorous examination of its physical, chemical, and microbiological attributes. The foundational blend, comprising spinach, banana, fresh cucumber, ginger, and water, was meticulously blended to attain the desired texture. For the enriched variant, a precise measure of either pumpkin seed or flax seed powder was incorporated and blended to achieve optimal consistency. The obtained juices underwent testing for microbial load, soluble protein, Polyphenols and flavonoid contents, as well as certain characteristics such as viscosity and density. The pH of the juices was monitored over a period of 7 days of storage, and their sensory properties were evaluated using both hedonic and analytical approaches.



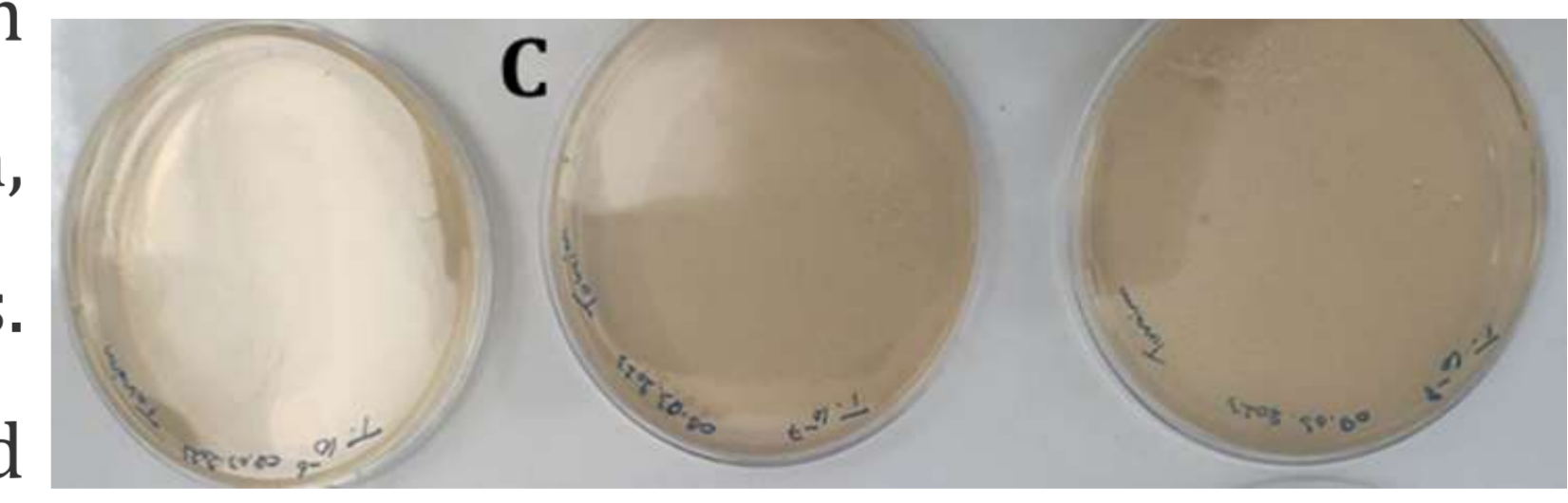
Discerning the physicochemical properties revealed variations in viscosity, density, soluble sugar content, and total protein content. Notably, the flax seed-enriched juice exhibited the highest viscosity at 905.54 mPa/s, while the control juice demonstrated the lowest at 789.55 mPa/s. All samples exhibited similar densities, approximating 20 g/cm³. The enriched juices demonstrated substantially higher total protein content (15.2 g/100ml for pumpkin seed-enriched and 15.6 g/100ml for flax seed-enriched) compared to the control juice (7.7 g/100ml). In addition to these findings, the pH analysis, extended over a period of 7 days, revealed intriguing dynamics. The control juice exhibited stability over the initial 2 days, maintaining a pH between 5.7 and 5.6, but then exhibited a steady decrease, reaching 3.8 by day 7. In contrast, the flax seed-enriched juice displayed superior stability, with a pH reduction of only 1 unit between day 0 and day 7 (from 5.8 to 4.8, respectively). Notably, the pumpkin seed-enriched juice showcased the highest pH after 7 days of conservation, registering at 5.22, underscoring its stability in comparison to the other variants. These findings collectively underscore the considerable influence of pumpkin seed and flax seed enrichment on the physicochemical attributes of the juice, and highlight the notable stability exhibited by the pumpkin seed-enriched juice in terms of pH over a 7-day conservation period.



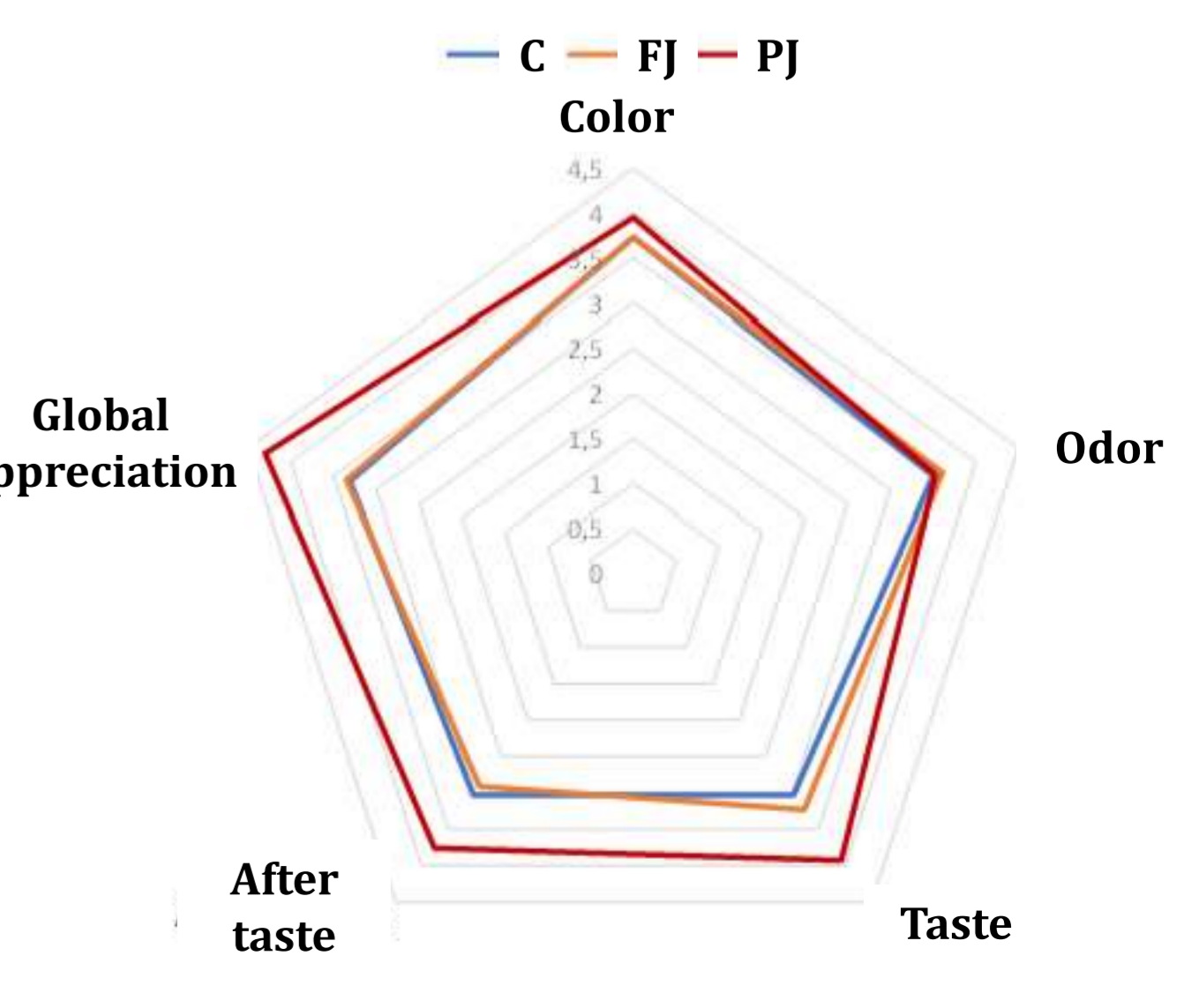
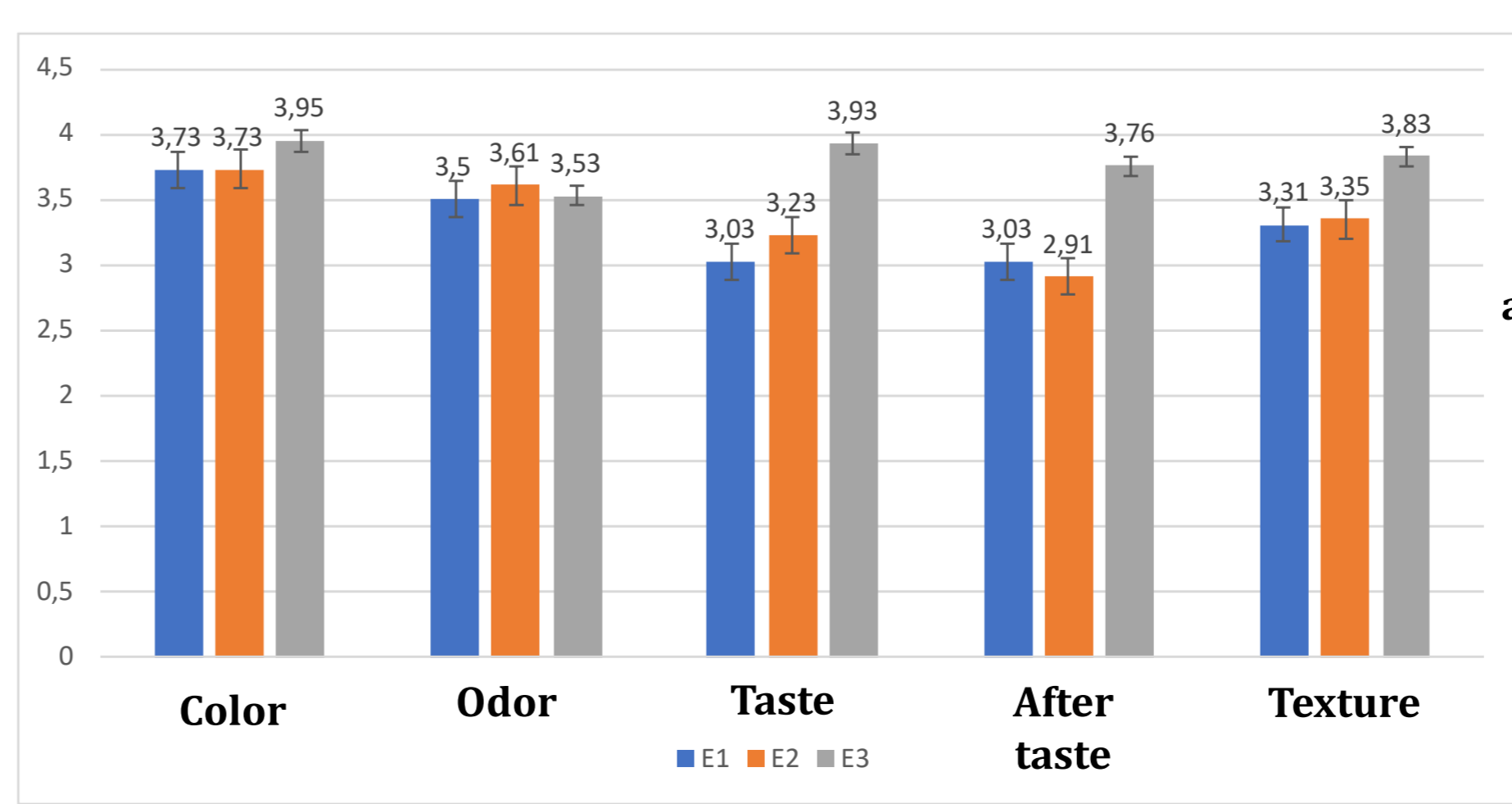
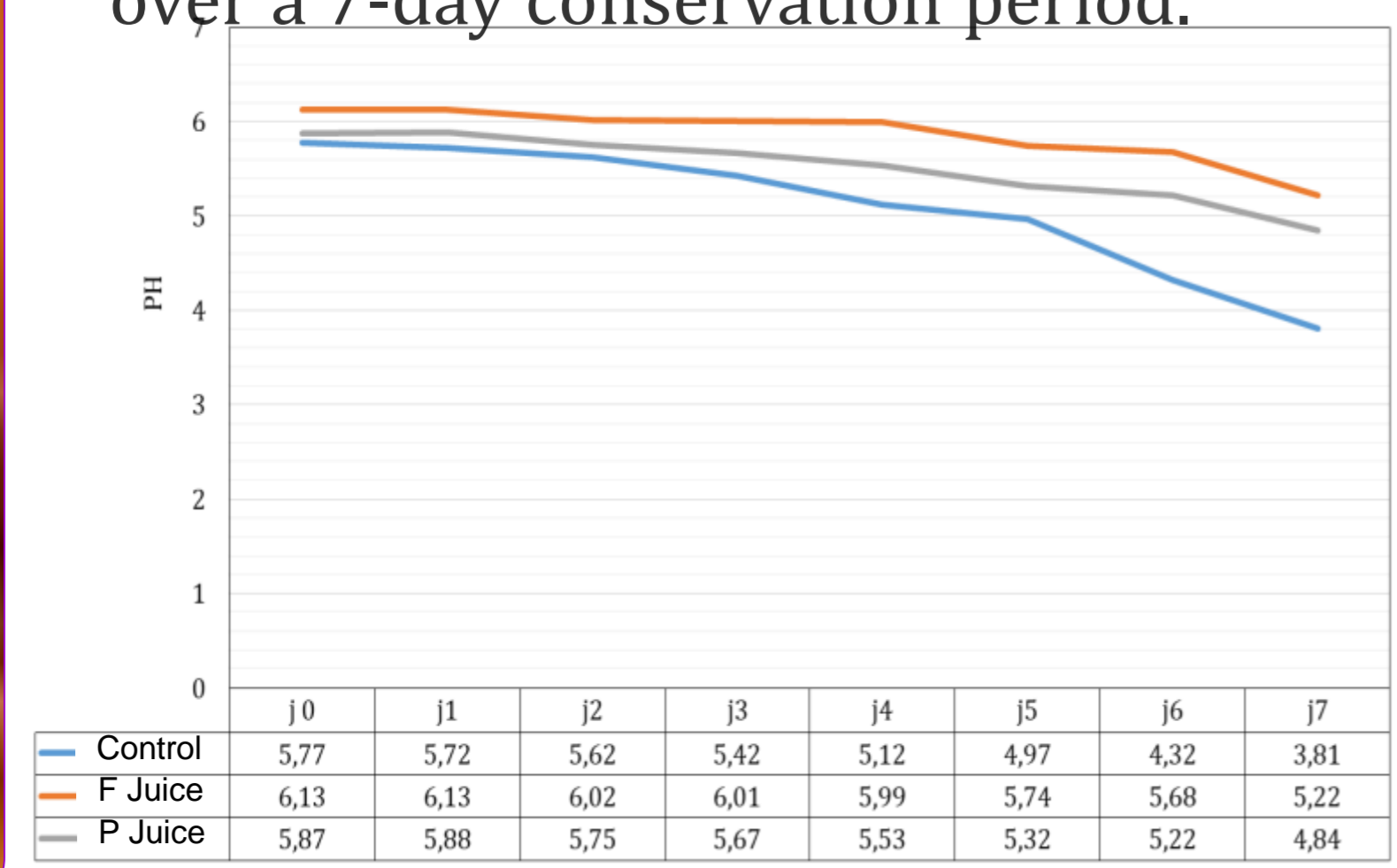
Control juice (65 bacterial colonies)



Juice enriched with pumpkin seeds (3 colonies)



Juice enriched with flax seeds (5 colonies)



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