**Impact of Serish root gum on the rheological, tribological, and sensory characteristics of non-dairy low-fat coffee creamers**

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**Abstract**

Coffee is a widely enjoyed beverage, often accompanied by creamers that can impact its taste and appearance. As consumer preference shifts towards healthier options, the food industry is challenged to develop low-fat non-dairy coffee creamers that maintain desirable sensory attributes. This study explores the use of Serish root gum (SRG) as an emerging stabilizer in coffee creamers because if its excellent rheological and functional properties. By replacing commercial thickeners with novel ones, we aimed to enhance the nutritional profile of coffee creamers while ensuring sensory satisfaction, contributing to sustainable food systems. In this research, the non-dairy coffee creamer (NDCC) was prepared with four fat reduction levels: 0%, 10%, 20%, and 30%. The dynamic viscosity results indicated that reducing fat in samples with SRG did not significantly differ from the commercial sample, with values decreasing to 0.721-0.712. Analysis of tribological properties showed an upward trend in friction coefficients with fat reduction, peaking in the sample with 10% fat reduction (about 0.17 at 100 mm/s), while the 30% fat reduction sample had the lowest friction due to the rheological and functional properties of SRG. Sensory tests revealed that the highest creaminess perception was in the full fat sample. Most sensory properties decreased with fat reduction but remained comparable to the commercial sample. Correlation analysis indicated that thickness significantly impacted creaminess perception, whereas the dairy taste was crucial for overall acceptance. A negative correlation was observed between dynamic viscosity and sensory properties, highlighting the importance of lubrication in sensory perception.In conclusion, this study demonstrates that Serish root gum is an effective and sustainable stabilizing agent for low-fat non-dairy coffee creamers, preserving sensory qualities while improving nutritional profiles. Its excellent rheological and functional properties make it a promising ingredient in formulating healthier food options.

***References:***

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