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Effect of incorporation of hydrocolloids on oil absorption during frying and sensory acceptability of vegetable nugget & batata vada (Gram Flour Coated Potato Balls)

Megha Choudhary

College of Home Science, Nirmala Niketan, India

Fried foods are very popular but may contain up to 40% of their total mass as an absorbed fat, a concentrated source of energy, from the frying medium which is associated with various health risks and diseases like obesity, CVD, diabetes, etc. This concern has gained interest in the field of research where several studies have been conducted focusing on strategies to reduce oil absorption during frying. Use of hydrocolloids was found to be one of the effective strategies. Hydrocolloids are non-digestible polysaccharides exhibiting thermo-gelling property by which they reduce oil absorption during frying. However, there are limited studies in context to commonly consumed fried foods of India and effect of hydrocolloids on their oil absorption. Hence, the present study was undertaken to assess the effect of incorporation of hydrocolloids namely, Carboxymethyl cellulose (CMC) and Carrageenan at concentration of 0.2%, 0.5% and 1% on oil absorption and sensory acceptability of Vegetable Nugget & Batata Vada (Gram flour coated potato balls). Difference in the weight of oil before and after frying was used to calculate oil absorption. Sensory evaluation was conducted using 5-point hedonic scale with 10 consumer panelists. The obtained data was statistically analyzed using one tailed t-test.

The results indicated that, there was a significant reduction in oil absorption after incorporation of hydrocolloids in both the recipes. Highest level of reduction in oil absorption was obtained for batata vada sample (55.01%) containing 1% CMC. Highest mean sensory acceptability score was obtained for batata vada sample containing 1% carrageenan. Therefore, study concluded that hydrocolloids can significantly reduce oil absorption and retain the sensory properties. Hence, use of hydrocolloids in commonly consumed fried foods can be recommended in day-to-day life leading the Indian population towards good snacking habits.

Biography

Megha Choudhary is a meritorious student who recently completed her MSc in home science specializing in food processing and preservation from College of Home Science Nirmala Niketan, Mumbai. She has worked as an intern in one of the leading snacking industries, Mondelez India Foods Pvt. Ltd. for a period of two and a half months in Consumer Science, R&D Function where she successfully worked on a qualitative project titled "Influence of food marketing on eating preferences of kids". She has also interned in marketing function of rasoi magic foods Pvt. Ltd. for duration of one month. She is a certified Internal Auditor (Dutch-HACCP) and has also gained training as a food safety supervisor (Manufacturing Level II). Her research proposal has won consolation prize in 15th Avishkar research convention 2021, an intercollegiate research proposal competition of the University of Mumbai.

megha711999@gmail.com