

Effect of Fermentation Time on Some Functional Properties of Moringa (Moringa oleifera) Seed Flour

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Abstract : The effect of fermentation time on some functional properties of Moringa (*Moringa oleifera*) seed flour was examined. Fermentation, an effective processing method used to improve nutritional quality of plant foods, tends to affect the characteristics of food components and their behaviour in food systems just like other processing methods. Hence the need for this study. Moringa seeds were fermented naturally by soaking in potable water and allowing it to stand for 12, 24, 48 and 72 hours. At the end of fermentation, the seeds were oven dried at 60°C for 12 hours and then milled into flour. Flour obtained from unfermented seeds served as control: hence a total of five flour samples. The functional properties were analyzed using standard methods. Fermentation significantly ($p < 0.05$) increased the water holding capacity of Moringa seed flour from 0.86g/g - 2.31g/g. The highest value was observed after 48 hours of fermentation. The same trend was observed for oil absorption capacity with values between 0.87 and 1.91g/g. Flour from unfermented Moringa seeds had a bulk density of 0.60g/cm³ which was significantly ($p < 0.05$) higher than the bulk densities of flours from seeds fermented for 12, 24 and 48. Fermentation significantly ($p < 0.05$) decreased the dispersibility of Moringa seed flours from 36% to 21, 24, 29 and 20% after 12, 24, 48 and 72 hours of fermentation respectively. The flours' emulsifying capacities increased significantly ($p < 0.05$) with increasing fermentation time with values between 50 - 68%. The flour obtained from seeds fermented for 12 hours had a significantly ($p < 0.05$) higher foaming capacity of 16% while the flour obtained from seeds fermented for 0, 24 and 72 hours had the least foaming capacities of 9%. Flours from seeds fermented for 12 and 48 hours had better functional properties than flours from seeds fermented for 24 and 72 hours.

Keywords : fermentation, flour, functional properties, Moringa

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