

## Protein Isolates from Chickpea (*Cicer arietinum* L.) and Its Application in Cake

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**Abstract :** In a study of chickpea protein isolate (CPI) preparation, the wet alkaline extraction was carried out. The objectives were to determine the optimal extracting conditions of CPI and apply CPI into a sponge cake recipe to replace egg and make acceptable product. The design used in extraction was a central composite design. The response surface methodology was preferred to graphically express the relationship between extraction time and pH with the output variables of percent yield and protein content of CPI. It was noted that optimal extracting conditions were 60 min and pH 10.5 resulting in 90.07% protein content and 89.15% yield of CPI. The protein isolate (CPI) could be incorporated in cake to 20% without adversely affecting the cake physical properties such as cake hardness and sensory attributes. The higher protein content in cake was corresponding to the amount of CPI added. Therefore, adding CPI can significantly ( $p < 0.05$ ) increase protein content in cake. However, sensory evaluation showed that adding more than 20% of CPI decreased the overall acceptability. The results of this investigation could be used as a basic knowledge of CPI utilization in other food products.

**Keywords :** chick bean protein isolate, sponge cake, utilization, sponge

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