**Ultracentrifugal and polyacrylamide gel electrophoretic studies of extractability and stability of almond meal proteins.**

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**Abstract:**
Solubility and stability properties of almond protein were determined using ultracentrifugation and gel electrophoresis to gain a better insight into the complexity of these proteins. Ultracentrifugal analyses of the water-extractable proteins of defatted almond meal revealed four fractions of 2S, 9S, 14S and 19S. The 14S fraction corresponds to amandin, the classical globulin isolated earlier, and constitutes 65-70% of the extractable proteins. Variation of ionic strength from 0 to 1·0 at pH 6-8 showed no evidence of association-dissociation reactions that are typical of many oilseed and legume proteins. Polyacrylamide gel electrophoresis of the water-extractable proteins under reducing conditions separated two pairs of major polypeptides of 44 and 42 kDa and 27 and 25 kDa that appeared to be the respective acidic and basic polypeptides of amandin corresponding to the classical legumin model. Sodium chloride had no effect on total protein extractability but variation of extraction pH showed a broad minimum in extractability at pH 3-5. In contrast, whena pH 9 extract was lowered in pH, the minimum in protein solubility was narrower and shifted upward to pH 5 largely as a result of the precipitation of amandin. Interaction of amandin with phytate may explain the lower pH of minimum solubility when the meal was extracted directly as opposed to lowering the pH of an alkaline extract. Amandin is a cryoprotein and was obtained in 90% purity by cooling a water extract of defatted meal. Incubation of a water extract of meal in the presence of amandin for about 12 days revealed proteolytic nicking of the acidic polypeptides of amandin apparently as a result of attack by endogenous proteinase(s).