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Enzymatic Assay for the Combined Determination of Plasmin Plus Plasminogen in Milk: Revisited

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The ability of ß-lactoglobulin variants A and B, α-lactalbumin, and BSA to inhibit plasmin plus plasminogen activity was examined. Data showed that ß-lactoglobulin A at concentrations of .2 and 1 mg/ml inhibited plasmin plus plasminogen activity by 18 and 54%. ß-Lactoglobulin B had no effect on plasmin plus plasminogen activity. At concentrations of .2 and 1 mg/ml, BSA inhibited plasmin plus plasminogen activity by 25 and 63%. α-Lactalbumin at concentrations of .2 and 1 mg/ml caused 1.9 and 20% inhibition of plasmin plus plasminogen activity. These data, collectively, suggest that existing methodology for measuring plasmin activity in milk serum underestimates real plasmin activity in milk. Underestimation is more pronounced in samples with high whey protein content (late lactation milk and milk obtained from mastitic quarters). To avoid this problem, we have modified the existing methodology. Our modification allows plasmin determination without interference from whey proteins and other plasmin inhibitors that are present in the serum fraction of bovine milk.

Key Words: plasmin • plasminogen • whey proteins

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