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Evaluation of Immunoglobulins in bovine colostrum using laser induced fluorescence

Z.A. Abdel-Salam^a, Sh. Abdel Ghany^b, M. A. Harith^a

^a National Institute of laser Enhanced Science, Cairo University, Egypt

^b Animal Production Department, Faculty of Agriculture, Cairo University, Egypt

Abstract

The objective of the present study was to exploit laser induced fluorescence (LIF) as a spectrochemical analytical technique for evaluation of immunoglobulin (IgG) in bovine colostrum. Colostrum samples were collected from different American Holstein cows at different times after calving. Four samples were gathered from each cow; the first three samples were obtained from the first three milkings (colostrum) and the fourth sample (milk) was obtained a week after calving. It has been demonstrated that LIF can be used as a simple, fast, sensitive and less costly spectrochemical analytical technique for qualitative estimation of IgG in colostrum. LIF results have been confirmed via the quantitative evaluation of IgG in the same samples adopting the single radial immunodiffusion conventional technique and a very good agreement has been obtained. Through LIF it was possible to evaluate bovine colostrum after different milking times and to differentiate qualitatively between colostrum from different animals which may reflect their general health status. A fluorescence linear calibration curve for IgG concentrations from 0 up to 120 gL⁻¹ has been obtained. In addition, it is feasible to adopt this technique for *in situ* measurements, i.e. in animal production farms as a simple and fast method for evaluation of IgG in bovine colostrum instead of using lengthy and complicated conventional techniques in laboratories.

Keywords: LIF; Immunoglobulins evaluation; Bovine colostrum

Corresponding author:

M. A. Harith

National Institute of Laser enhanced Science,

Cairo University Giza 12316, Egypt

Tel/Fax: +202 35675335

mharithm@niles.edu.eg

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