

Characterisation of SDA Containing *Echium plantagineum* Oil Body Emulsions

Payne G, Lad M and Gray D, University of Nottingham
Loughborough, United Kingdom

Echium plantagineum seed oil contains the omega-3 fatty acid stearidonic acid (C18:4) which is the product of the delta-6-desaturase enzyme which is the rate limiting step of the fatty acid biosynthetic pathway in humans. These lipids are contained in oil bodies within the seed; oil bodies consist of a triacylglycerol matrix surrounded by a phospholipid monolayer studded with oleosin proteins. Oil bodies can be recovered quite simply and suspended in water to produce an emulsion. Washing *E. plantagineum* oil bodies has a major effect on emulsion stability, crude oil body emulsion formed stable emulsions at pH 7 and 8 while water and urea-washed oil bodies did not form a stable emulsion at any pH tried. At pH 8 emulsions made with the different oil body preparations had the same ζ -potential but only crude oil body emulsions formed a stable emulsion. The reduction in emulsion stability can be attributed to the reduction in extraneous proteins that are removed during washing. Crude oil bodies have a protein content of 8.9 ± 0.1 (n=3) while water and urea-washed oil bodies have a protein content of 6.8 ± 0.2 (n=3) and 4.2 ± 0.5 (n=3) respectively.