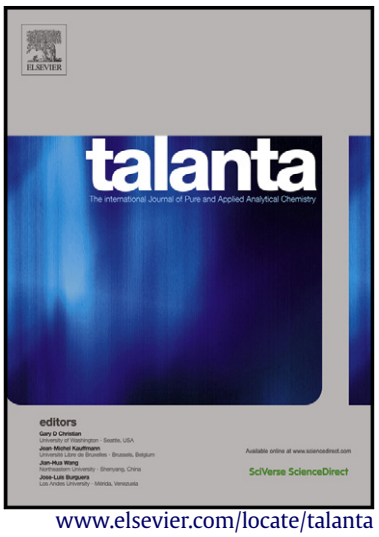


www.elsevier.com/locate/talanta

# Charge-based characterisation of High-molecular-weight glutenin subunits from common wheat by capillary isoelectric focusing

Bolesław P. Salmanowicz, Monika Langner, Sławomir Franaszek

PII: S0039-9140(14)00333-6
DOI: http://dx.doi.org/10.1016/j.talanta.2014.04.055
Reference: TAL14727

To appear in: *Talanta*

Received date: 10 March 2014
Revised date: 15 April 2014
Accepted date: 21 April 2014

Cite this article as: Bolesław P. Salmanowicz, Monika Langner, Sławomir Franaszek, Charge-based characterisation of High-molecular-weight glutenin subunits from common wheat by capillary isoelectric focusing, *Talanta,* http://dx.doi.org/10.1016/j.talanta.2014.04.055

# Charge-based characterisation of high-molecular-weight glutenin subunits from common wheat by capillary isoelectric focusing

**Bolesław P. Salmanowicz*, Monika Langner, Sławomir Franaszek**

*Institute of Plant Genetics of the Polish Academy of Science, Strzeszyńska Str. 34, 60-479 Poznań, Poland*

* Corresponding author. Tel.: +48 61 6550232; fax: +48 61 6550301

*E-mail address*: bsal@igr.poznan.pl (B.P. Salmanowicz)

## ABSTRACT

In this study, the capillary isoelectric focusing (CIEF) method for the separation and charge characterisation of the heterogeneity of high molecular-weight glutenin subunits (HMW-GS) in common wheat (*Triticum aestivum* L.) using linear polyacrylamide (LPA) and polyvinyl alcohol (PVA) coated capillaries was developed. Particularly good repeatability and well-resolved charge isoform profiles were obtained by introducing a mixture of carrier ampholytes (pH 3-10 and pH 5-8), a high concentration of urea (6 M) and SB3-12 as detergent in a sample solution during separation in a PVA-coated capillary. One major and one or two minor isoforms were observed for the individual HMW-GS. These isoforms were satisfactorily separated using a pH gradient into two groups: y-type isoforms and x-type isoforms encoded by the *Glu-B1* locus with shorter migration times and remaining x-type isoforms with longer times. The method produced from eight to twelve isoforms of wheat HMW-GS with p*I* points in the range of 4.72 to 6.98. Generally, the minor isoforms were more acidic compared with the major isoform. The y-type subunits had an approximately neutral character (p*I* 6.70-6.98); however, x-types showed a weakly acidic character (p*I* 4.72-5.23), with the exception of subunits encoded by the *Glu-B1* locus. The isoelectric point peak profiles were compared with capillary zone electrophoresis (CZE) electropherograms. Generally, the number of detected isoforms for the particular HMW-GS detected using both methods was similar.