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Data Article

Data on the characterization of native soy globulin by SDS-Page, light scattering and titration

Nannan Chen [a,b], Mouming Zhao [a], Christophe Chassenieux [b], Taco Nicolai [b,*]

[a] College of Light Industry and Food Sciences, South China University of Technology, 510640 Guangzhou, China
[b] Université du Maine, IMMM UMR-CNRS 6283, Polymères, Colloïdes et Interfaces, 72085 Le Mans cedex 9, France

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ABSTRACT

The data presented in this article are related to the research article entitled *Structure of Self-assembled Native Soy Globulin in Aqueous Solution as a Function of the Concentration and the pH* by N. Chen, M. Zhao C. Chassenieux, T. Nicolai (2016) [1]. Please refer to this article for interpretation of the data. The protein composition of soy protein isolate (SPI) was characterized by SDS-Page. The molar mass of native soy globulin aggregates formed at different protein concentrations was determined by light scattering as a function of the waiting time. The dependence of the pH on the net charge density of native soy globulins was determined for solutions containing 5 g/L or 2 g/L SPI.
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Specifications Table

Subject area	*Protein*
More specific subject area	*Soy*

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* Corresponding author.
E-mail address: Taco.Nicolai@univ-lemans.fr (T. Nicolai).

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Type of data	*Figures*
How data was acquired	*Commercial light scattering equipment ((ALV-CGS3, ALV-Langen)* *Automatic titrator (TIM 856, Radiometer Analytical)*
Data format	*Analyzed*
Experimental factors	*SPI was dissolved in Millipore water and centrifuged at 4×10^4 g for 4 h.*
Experimental features	*Reducing sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) was performed with a discontinuous buffered system, using 12% separating gel and 5% stacking gel. Light scattering was done on highly diluted solutions as a function of the scattering wave vector (q). The molar mass was determined from the scattering intensity extrapolated to zero q.*
Data source location	*n/a*
Data accessibility	*Data is with this article*

1. Data

The SDS-Page pattern for SPI is shown in Fig. 1. The dependence of the molar mass of SPI aggregates on the waiting time is shown in Fig. 2 for different protein concentrations. Titration curves of native SPI at $C=2$ g/L and $C=5$ g/L are shown in Fig. 3.

2. Experimental design, materials and methods

SPI was obtained from defatted soy flakes as described in Ref. [2]. Aqueous solutions of SPI were prepared as described in Ref. [1]. Reducing sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) was performed on a discontinuous buffered system, using 12% separating gel and 5% stacking gel. The molar mass of native SPI aggregates was determined by light scattering as described in Ref. [1]. Solutions were titrated with 0.1 M NaOH and from the amount of added NaOH the net charge density of the protein was calculated as described in Ref. [1].

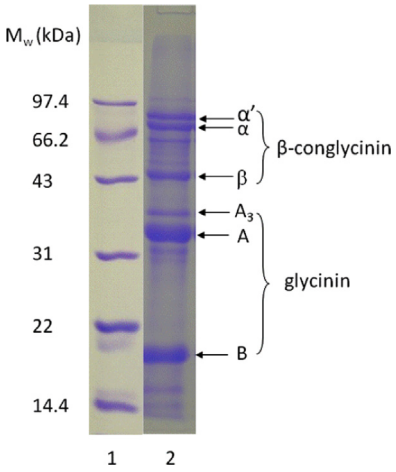

Fig. 1. SDS-Page pattern of the soy globulin used for this study. Lane 1 Molecular weight standards. Lane 2 Native soy globulin: α′, α and β represent subunits of β-conglycinin; A, A_3 and B represent the acid and basic polypeptides of glycinin.

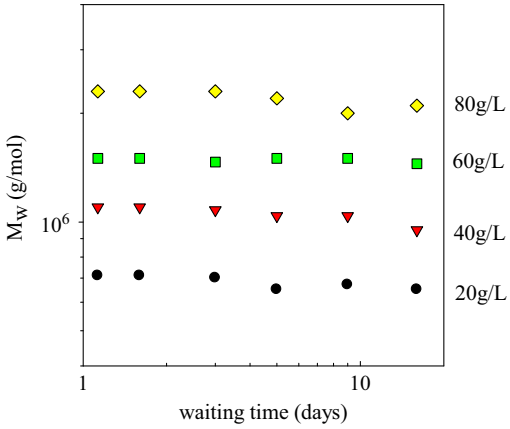

Fig. 2. Molar mass of the soy globulin aggregates formed at different protein concentrations as a function of the waiting time before dilution and characterization by light scattering.

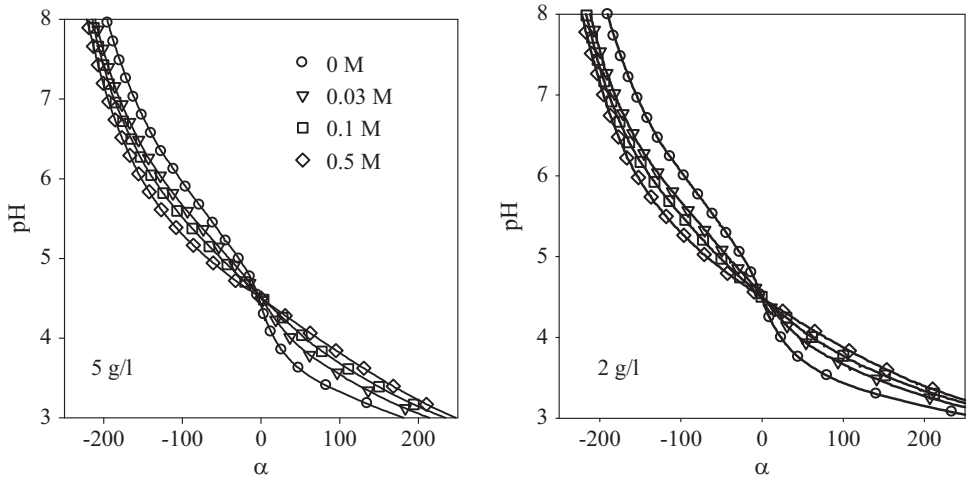

Fig. 3. Dependence of the pH on the charge density of native soy globulins at different NaCl concentrations indicated in the figure for solutions containing 5 g/L or 2 g/L SPI. Data at $C=10$ g/L are shown in Fig. 5 of the associated research article [1].

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Transparency document. Supplementary material

Transparency data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2016.10.016.

References

[1] N. Chen, M. Zhao, C. Chassenieux, T. Nicolai, Structure of self-assembled native soy globulin in aqueous solution as a function of the concentration and the pH food, Hydrocolloids **56** (2016) 417–424.
[2] N. Chen, L. Lin, W. Sun, M. Zhao, Stable and pH-sensitive protein nanogels made by self-assembly of heat denatured soy protein, J. Agric. Food Chem. **62** (2014) 9553–9561.