***Surname* : DELAPLACE**

***First name* : Pierre**

E-mail : delaplace.p@fsagx.ac.be

Abstract title

Characterization of potato (*Solanum tuberosum* L.) tuber ageing using physiological and proteomic markers (2D-PAGE).

Author names and affiliations

The authors were listed according to their respective institution and not to their importance in this work. If you want such a classification, please let me know your wish.

Pierre DELAPLACE, FAUCONNIER M.L., DU JARDIN P., Plant Biology Unit, Faculté universitaire des sciences agronomiques de Gembloux, Belgium
Jean-François DIERICK, Unité de Protéomique, BioVallée, Belgium
A.H.P. AMERICA, F. VAN DER WAL, J.G. CORDEWENER, Plant Research International B.U. Biosciences, Wageningen, The Netherlands

Abstract body text

The Physiological age of potato seed tubers greatly influences their agronomical performance. However, a reliable ageing index that could be used prior to planting is still lacking. In order to fill this gap, potato seed tubers (*cv* Désirée) were stored at 4°C for 7 months and regularly sampled (10 time points) to assess and correlate both physiological and biochemical markers.
Different physiological ageing parameters (Physiological Age Index [PAI], incubation period characterizing the duration between sprouting and daughter tubers production, measure of the longest sprout) were evaluated by recording the germination parameters of 40 tubers for each time point. Polynomial and linear models can readily be adjusted on PAI and incubation period data in order to define a robust frame of reference that could replace the chronological age in later studies.
A complementary biochemical approach using two-dimensional polyacrylamide gel electrophoresis has then been set up. Two sample preparation methods using respectively SDS-containing extraction buffer and phenol-phase extraction were compared. The best profiles were obtained using the hot SDS extraction technique. For each time point, protein profile of 15 mixed sample tubers was assessed in order to discover protein markers of the ageing process and to correlate them with our germination-based physiological data. Preliminary results of extreme samples comparison (oldest *vs* youngest sample) are shown.