Protein Extraction from Popcorn (*Zea mays* L.) Seeds Endosperm and Germ

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Some protocols are found in the literature for seeds proteins extraction of common corn (*Zea mays* L.) aiming proteomic studies. In this work were assayed three different protocols for endosperm and germ protein extraction in popcorn seeds with the same objective. Spikes from popcorn with 15 days after pollination had their seeds collected to detach endosperm, germ and pericarp, being the later discarded. Different amounts of material (endosperm and germ), ranging from 0.1g to 0.5g were subjected to three different protocols of protein extraction: The first protocol used TCA 10% in acetone, described by Liu (2009) Mol. Biol. Reports, 36:813-821. In the second, Wang (2003) Electrophoreis, 24:2369, suggested the addiction of SDS-dense phenol buffer. The third one was a saline TRIS-buffer followed by acetone precipitation from Chen (2002) Phytopathology, 92:1084. The final material from each protocol was resuspended in SDS 2% to protein quantification using the BCA protocol. SDS-PAGE 12% was done to compare extraction. The quantification of proteins showed that Wang (2003) protocol showed the lower protein recuperation at low amount of sample. Liu (2009) and Chen (2002) protocols showed more effective to extracted proteins as lower start material. Chen (2002) protocol was more effective to extract protein from germ while Liu (2009) was to extract from endosperm, being in both case at higher amount of starting material. To an amount of 0.4g of endosperm, these protocols presented 1.6, 1.4 and 0.87 mg protein.mL$^{-1}$; and to the 0.1g of germ were 0.25 and 0.33 and 0.32 mg protein.mL$^{-1}$, respectively as first described. The performance of SDS-PAGE was not successful to demonstrate difference in recovering proteins. SDS-dense phenol buffer protocol was not satisfactory due to the small amount of protein recovered and the other protocols presented a different performance between germ and endosperm in recovering higher amount of proteins.

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