

Fig. 1. Proximate analysis of the samples. (A) Represents the protein content. (B) Represents the ash content. (C) Represents the fat content. (D) Represents the starch content. * represents significant differences ($P < 0.05$) between PW, P80 and P160 extraction yields. Values are mean ($n=3$) dry weight (gram per 100 gram dry weight) \pm standard error of the mean (SEM). PW represents wheat pentosan without extrusion, whereas P80 represents wheat pentosan extruded at 80 rpm and P160 represents wheat pentosan extruded at 160 rpm.

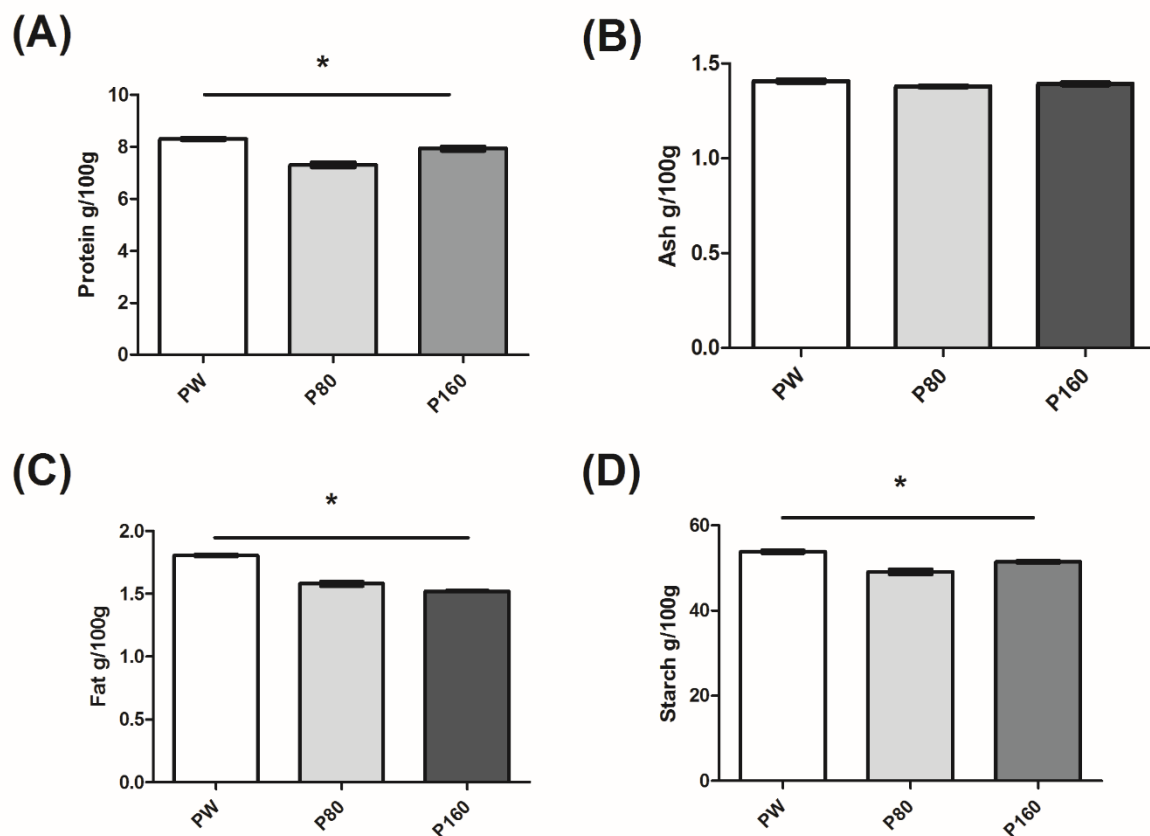


Fig. 2. Color changes in extruded and non-extruded samples. (A) Shows the difference in brightness L^* , (B) Shows the difference in redness a^* , (C) Shows the difference in yellowness b^* and (D) Shows browning index ΔE . The # symbol above the samples indicates no significant differences were identified between PW, P80 and P160 color changes, whereas the * symbol represents significant ($P < 0.05$) differences between PW, P80 and P160 color changes. Values are mean ($n=3$) dry weight (gram per 100 gram dry weight) \pm standard error of the mean (SEM). PW represents wheat pentosan

without extrusion, whereas P80 represents wheat pentosan extruded at 80 rpm and P160 represents wheat pentosan extruded at 160 rpm.

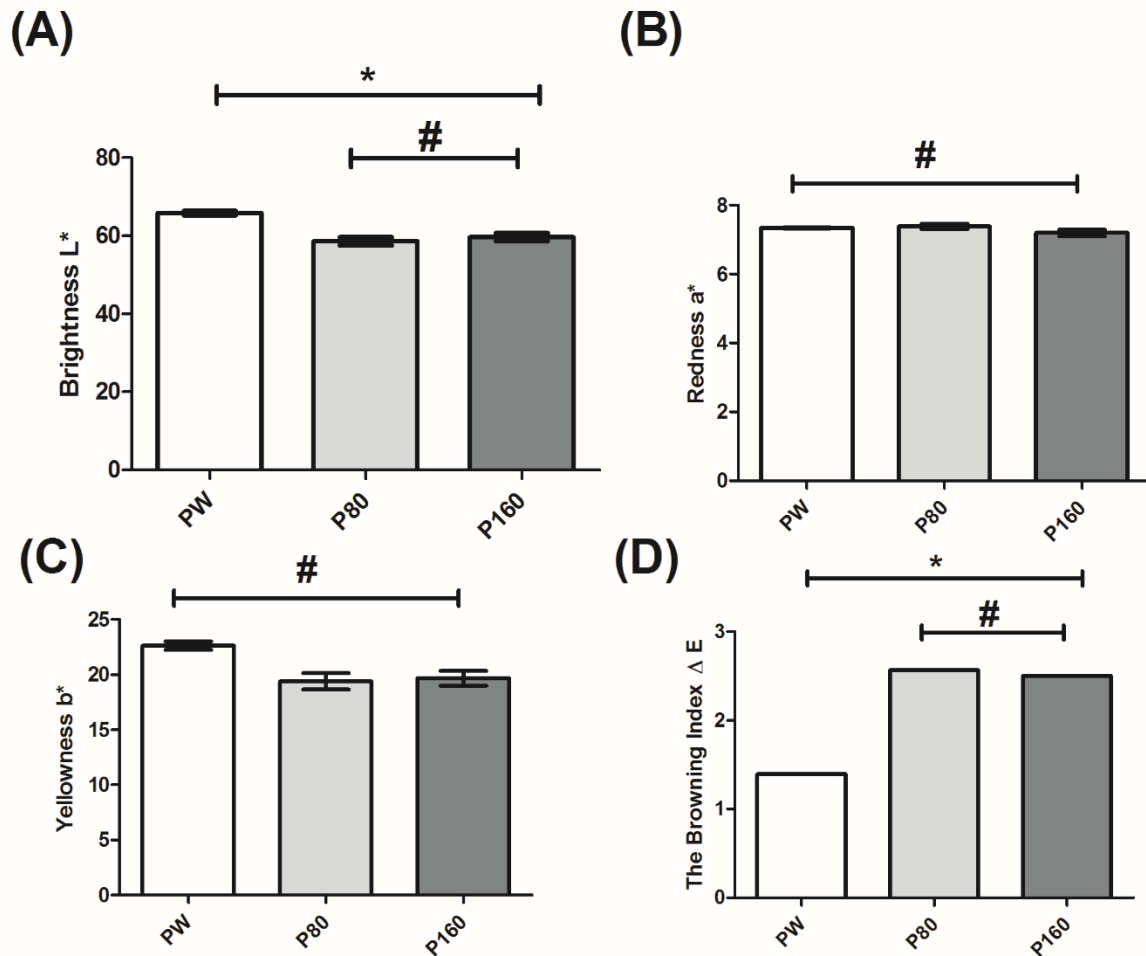


Fig. 3. Sugar composition for purified AXs from wheat pentosan obtained by water extraction alone (PW) or via extrusion at 80 rpm (P80) and 160 rpm (P160). PW represents wheat pentosan without extrusion, whereas P80 represents wheat pentosan extruded at 80 rpm and P160 represents wheat pentosan extruded at 160 rpm.

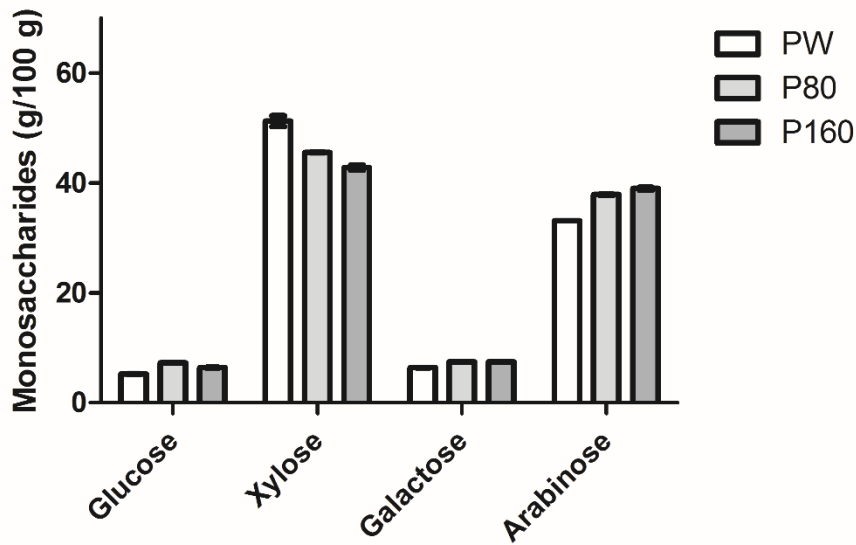


Fig. 4. Mw

distribution of AXs in PW, P80 and P160 analyzed by HPSEC. The dashed lines separate the area under the curve into four areas (A1 to A4), each of which represents a distinct Mw range. PW represents wheat pentosan without extrusion, whereas P80 represents wheat pentosan extruded at 80 rpm and P160 represents wheat pentosan extruded at 160 rpm.

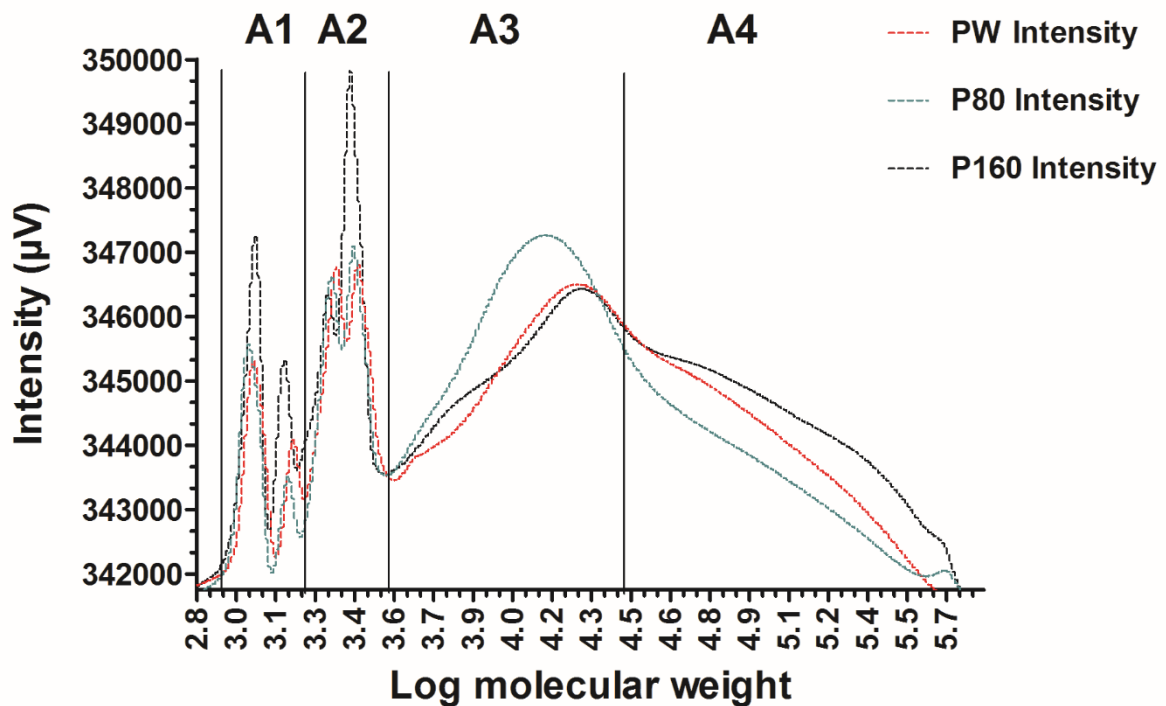


Fig. 5. Viscosity measurements for extruded and non-extruded wheat pentosan. PW represents wheat pentosan without extrusion, whereas P80 represents wheat pentosan extruded at 80 rpm and P160 represents wheat pentosan extruded at 160 rpm.

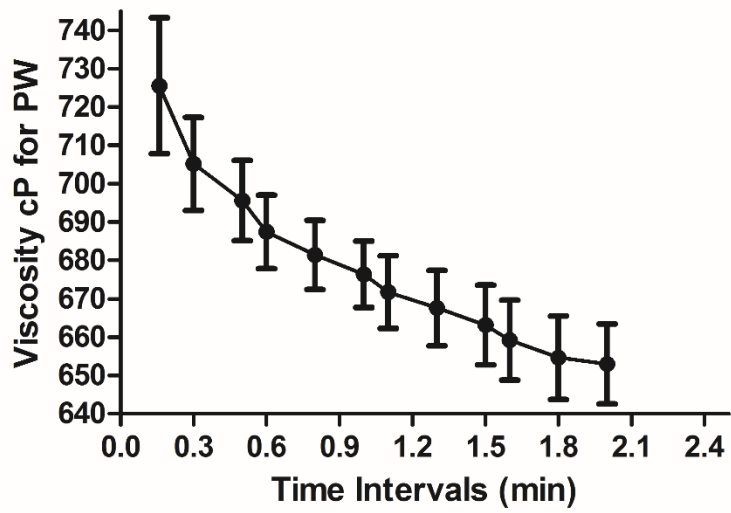
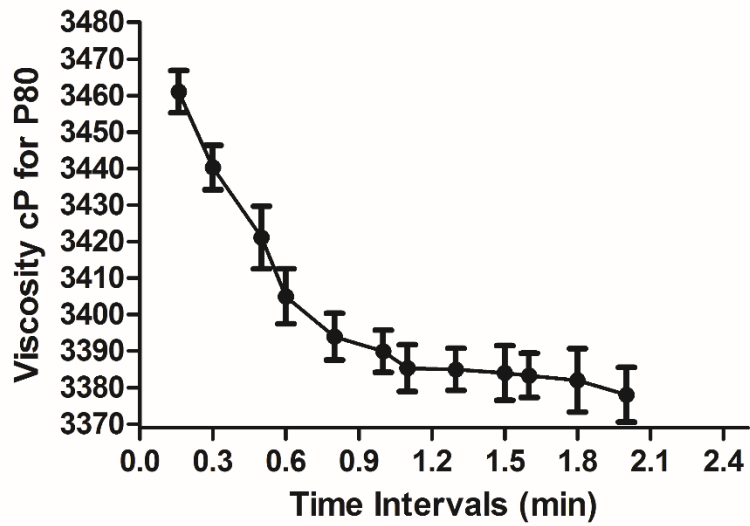
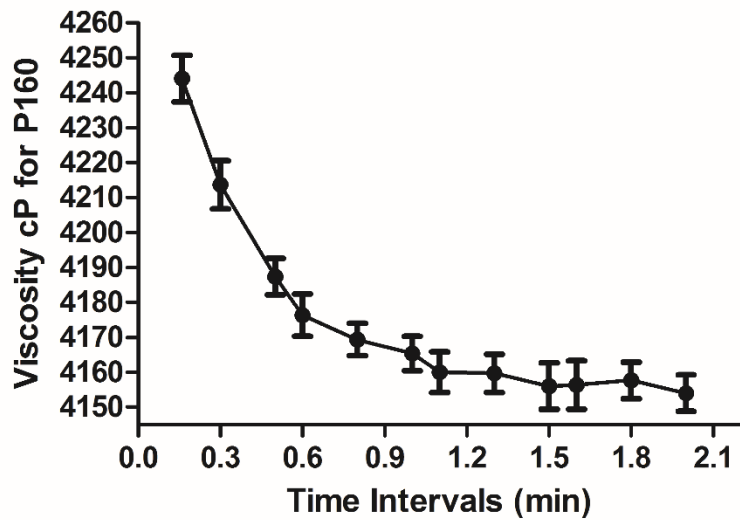
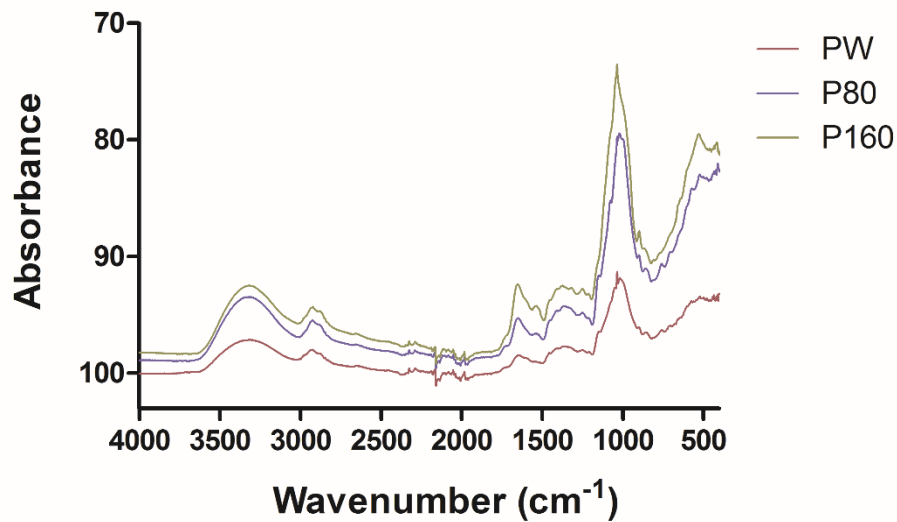
A**B****C**

Fig. 6. FT-IR spectrum of WEAXs from extruded and non-extruded samples. PW represents wheat pentosan without extrusion, whereas P80 represents wheat pentosan extruded at 80 rpm and P160 represents wheat pentosan extruded at 160 rpm



Graphical abstract

