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## Efficiency of xylanases from families 10 and 11 in production of xylo-oligosaccharides from wheat arabinoxylans

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### Highlights

- Xylan hydrolysis is superior with family 10 xylanase compared to family 11 or 10&11
- The pH optimum for hydrolysis of xylan into small xylo-oligosaccharides is pH 2.5
- Xylanase family and pH dictate effects of temperature and time on xylan hydrolysis

### Abstract

This study investigated the effect of xylanases from families 10 and 11 on the production of small chain arabinoxyloligosaccharides (AXOS) (X<sub>2</sub>, X<sub>3</sub> and X<sub>4</sub>) from wheat arabinoxylans, and identified the impact that pH, temperature and time exposed to xylanase have on this process. Xylanase from family 10 had greater hydrolytic efficiency and resulted in heightened AXOS production compared with xylanase from family 11 or family 10 and 11 combined. The pH of the environment had a significant effect on AXOS production (P<0.001) and the greatest conversion of arabinoxylans into AXOS was observed at pH 2.5. The effects of temperature of the environment and amount of time the samples were exposed to the xylanase on AXOS production were inconsistent and were dictated by pH and xylanase family, as evidenced by interactions between temperature and pH (P=0.016) and xylanase family (P=0.032) and time and pH (P=0.007).

**Keywords :** Arabinoxylan; AXOS; Xylo-oligomers; Xylanase; Xylanase family

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