

Supplementary File S1. State of the art regarding wheat straw fractioning after various treatments in terms of monosaccharides, xylo-oligosaccharides and inhibitors yields

| Reference | Treatment Conditions | Samples ³ | Monosaccharides | | | Xylo-oligosaccharides (XOS) | | | | | Inhibitors | | |
|-------------------------------|--|---------------------------|-----------------|------------------|---------------------|-----------------------------|-------------------|---------------------|-------------------------------------|------------------|--------------------|-----------------|------------|
| | | | Glucose (g/kg) | Xylose (g/kg) | Total Sugars (g/kg) | Xylobiose (X2) (g/kg) | Xylotriose (g/kg) | Xylotetraose (g/kg) | Other XOS (DP 4–6 or DP > 6) (g/kg) | Total XOS (g/kg) | Acetic Acid (g/kg) | Furfural (g/kg) | HMF (g/kg) |
| Chen et al., 2018 [10] | HTP ¹ (120, 140, 160, 180 and 200 °C, 30 min); Alkaline ethanol treatment (NaOH), enzymatic hydrolysis (CellicTec2), 50 °C, 72 h | L ₁₄₀ | NA ⁸ | 0.06 | | 0.11 | 0.07 | 0.05 | 4.59 | 4.82 | 10.9 | ND | ND |
| | | L ₁₆₀ | NA | 0.21 | | 0.58 | 0.59 | 0.30 | 30.15 | 31.62 | 13.99 | ND | ND |
| | | L ₁₈₀ | NA | 6.04 | | 5.37 | 4.25 | 2.27 | 49.8 | 61.69 | | | |
| Huang et al., 2017 [18] | LHWP ² (140–220 °C, 20–80 min) | L ₁₄₀ (40 min) | ND ⁹ | 10± 0.0 | | | | 5 ± 0.1 | | | 0.6 ± 0.2 | 0.0 ± 0.0 | |
| | | L ₁₆₀ (40 min) | 1 ± 0.0 | 2 ± 0.0 | | | | 20 ± 0.2 | | | 0.8 ± 0.1 | 0.0 ± 0.0 | |
| | | L ₁₈₀ (20 min) | 3 ± 0.2 | 2 ± 0.0 | | | | 42 ± 0.5 | | | 0.8 ± 0.0 | 0.1 ± 0.0 | |
| | | L ₁₈₀ (40 min) | 3 ± 0.1 | 6 ± 0.2 | | | | 49 ± 0.2 | | | 1.0 ± 0.1 | 0.1 ± 0.0 | |
| | | L ₁₈₀ (60 min) | 2 ± 0.1 | 4 ± 0.1 | | | | 48 ± 0.4 | | | 1.0 ± 0.3 | 0.2 ± 0.1 | |
| | | L ₁₈₀ (80 min) | 2 ± 0.0 | 5 ± 0.0 | | | | 36 ± 0.1 | | | 1.1 ± 0.3 | 0.2 ± 0.0 | |
| | Enzymatic hydrolysis ((Cellic CTec2 (25 FPU/g-cellulose), 50 °C, 150 rpm 48 h)) | L ₁₄₀ (40 min) | 65 ± 0.1 | 32 ± 0.2 | | | | | | | | | |
| | | L ₁₆₀ (40 min) | 70 ± 0.0 | 41 ± 0.9 | | | | | | | | | |
| | | L ₁₈₀ (20 min) | 90 ± 0.4 | 42 ± 0.2 | | | | | | | | | |
| | | L ₁₈₀ (40 min) | 117 ± 0.7 | 41 ± 0.5 | | | | | | | | | |
| | | L ₁₈₀ (20 min) | 90 ± 0.4 | 42 ± 0.2 | | 1.5 ± 0.1 | 1.4 ± 0.1 | 1.7 ± 0.6 | 0.17 ± 0.0 | 9.2 ± 0.2 | | | |
| | | L ₁₈₀ (60 min) | 116 ± 0.7 | 31 ± 0.3 | | | | | | | | | |
| Ertas et al., 2014 [15] | HTP (160–200 °C for 10–20 min)+acid hydrolysis ((4% (w/w) H ₂ SO ₄ for 1 h at 121 °C) | L ₁₆₀ (10 min) | 1.3 | 1.5 ⁴ | 2.8 | | | | | | | | |
| | | L ₁₆₀ (20 min) | 1.8 | 2.2 | 4.0 | | | | | | | | |
| | | L ₁₈₀ (10 min) | 2.9 | 6.8 | 9.7 | | | | | | | | |
| | | L ₁₈₀ (20 min) | 2.3 | 8.5 | 10.8 | | | | | | | | |
| | | L ₁₉₀ (10 min) | 2.9 | 9.3 | 12.2 | | | | | | | | |
| | | L ₁₉₀ (20 min) | 2.7 | 7.4 | 10.1 | | | | | | | | |
| Antov and Dordevic, 2017 [17] | US ⁵ +enzymatic hydrolysis (endo-xylanase, 0.15 U/g or 0.30 U/g, 48h | L1 ⁶ | 30.9 | 7.9 | | | | 85.1 | | | | | |
| | | L2 ⁷ | 37.4 | 14.2 | | | | 83.8 | | | | | |
| Ilanidis et al., 2021 [56] | HTP (160, 175, 190, and 205 °C, 15 min) | L ₁₆₀ | 0.1 ± 0.1 | 0.1 ± 0.1 | | | | NA | | | 15 ± 0.1 | <0.1 ± 0.1 | <0.1 ± 0.1 |
| | | L ₁₇₅ | 0.1 ± 0.1 | 0.1 ± 0.1 | | | | NA | | | 22.5 ± 0.1 | <0.1 ± 0.1 | <0.1 ± 0.1 |
| | | L ₁₉₀ | 0.1 ± 0.1 | 1.6 ± 0.1 | | | | NA | | | 36.1 ± 0.1 | <0.1 ± 0.1 | <0.1 ± 0.1 |
| | | L ₂₀₅ | 0.7 ± 0.1 | 4.4 ± 0.1 | | | | | | | | | |
| | | | | | | | | | | | | | |
| | aqueous sulfuric acid (160, 190°C, 15 min) | L ₁₆₀ | 0.2 ± 0.1 | 0.1 ± 0.1 | | | | NA | | | 11.7 ± 0.1 | <0.1 ± 0.1 | <0.1 ± 0.1 |
| | | L ₁₉₀ | 0.2 ± 0.1 | 2.5 ± 0.1 | | | | NA | | | 33.8 ± 0.1 | <0.1 ± 0.1 | <0.1 ± 0.1 |
| Akpınar et al., 2009 [59] | Alkaline treatment (xylan extraction) Enzymatic hydrolysis (4U/mL of xylanase from <i>A. niger</i> , pH 5.5 40 °C, 24h or 4U/mL of xylanase from <i>T. longibrachiatum</i> , pH 4.6 at 50 °C, 24h) ¹⁰ | | 3.15 ± 0.07 | 79.9 ± 0.2 | | 0.786 ± 0.079 | 0.719 ± 0.072 | 0.0767 ± 0.008 | 0.551 | 0.719 | | | |
| | | | | | | | | | | | | | |
| Carvalho et al., 2009 [43] | Autohydrolysis (150 °C–240 °C, non-isothermal conditions) | L ₁₅₀ | 0.63 | 1.66 | | | | | | | 0.64 | ND | 0.01 |
| | | L ₁₇₀ | 0.97 | 1.79 | | | | | | | 0.80 | ND | 0.01 |
| | | L ₁₉₀ | 0.73 | 1.44 | | | | | | | 1.31 | 0.01 | 0.01 |
| | | L ₂₀₀ | 1.63 | 0.84 | | | | | | | 1.70 | 0.03 | 0.01 |
| Nabarlatz et al., 2007 [20] | Autohydrolysis (179 °C, 23 min) ¹¹ | | 0.8 | 0.9 | | | | | | 41.2 | 0.6 | 0.0 | 0.2 |