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SUPPORTING INFORMATION FOR

2 Water-soluble hemicelluloses for high humidity applications -
3 enzymatic modification of xyloglucan for mechanical and
4 oxygen barrier properties

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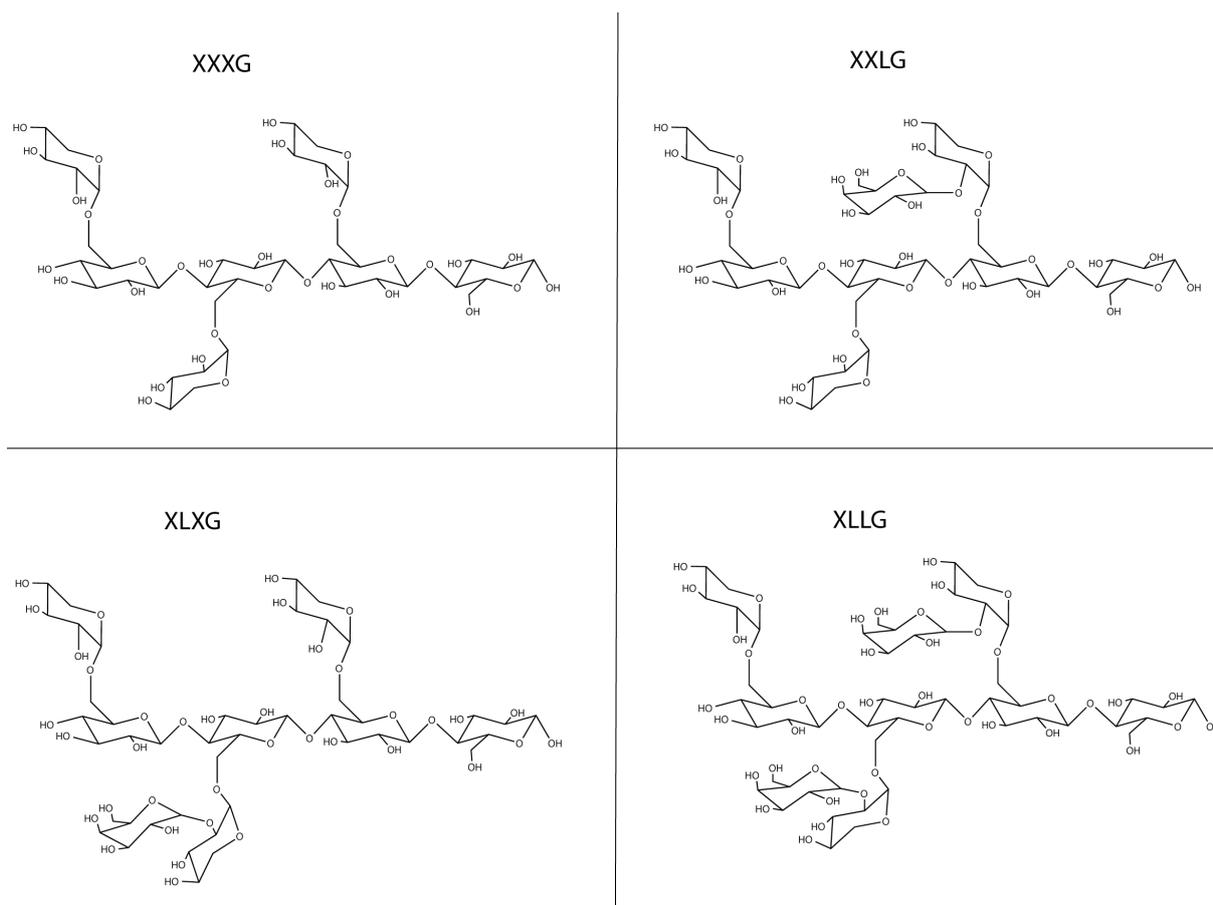
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Joby J Kochumalayil, Lars A Berglund

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9 Xyloglucan oligosaccharides

10 The four basic repeating units of xyloglucan oligosaccharides present in tamarind seed
11 xyloglucan are presented in Figure S1



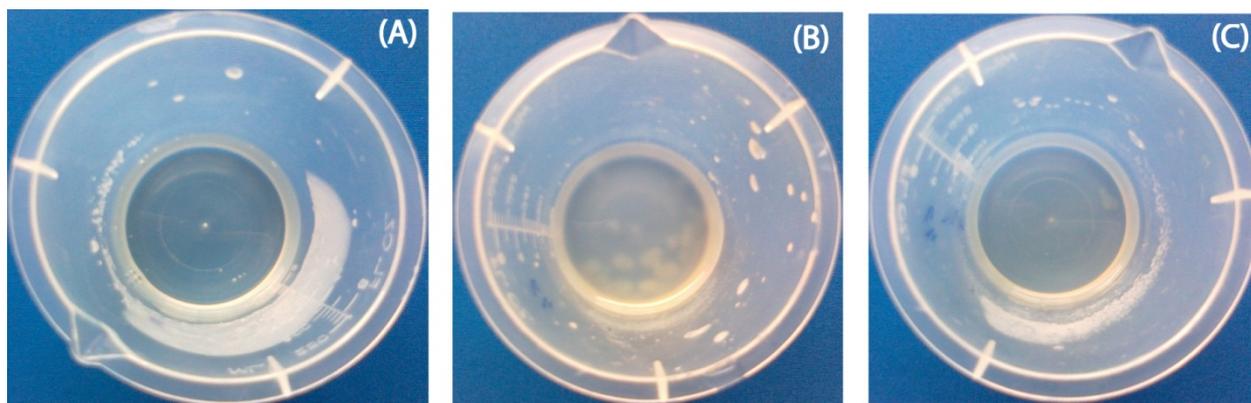
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13 **Figure S1. Four basic repeating units of oligosaccharides present in tamarind seed xyloglucan**

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16 **Modified xyloglucan dissolution**

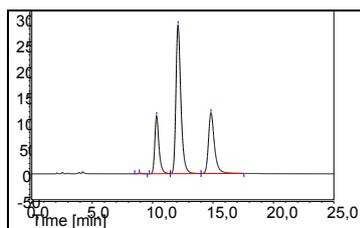


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18 **Figure S2 Photographs showing 1% aqueous solutions of (A) xyloglucan, (B) partially galactose removed**
19 **modified xyloglucan (64 h enzyme treated sample), and (C) solution in (B) after mechanical**
20 **homogenization and sonication**

21 22 **High performance anion exchange chromatography (HPAEC) analysis**

23 High performance anion exchange chromatography equipped with pulsed amperometric
24 detector (HPAEC-PAD, Dionex ICS-3000) was used to determine the sugar composition of
25 XG and modified XGs. The amount of sugar was calculated from the area corresponding to
26 each sugar present in the material using calibration samples. Noting the initial amount of the
27 material taken, the composition of sugars /100 mg of the sample was calculated and is given
28 in manuscript Table 1. The data are presented in Figure S3-S6 and integration results obtained
29 are given in tables S1-S4

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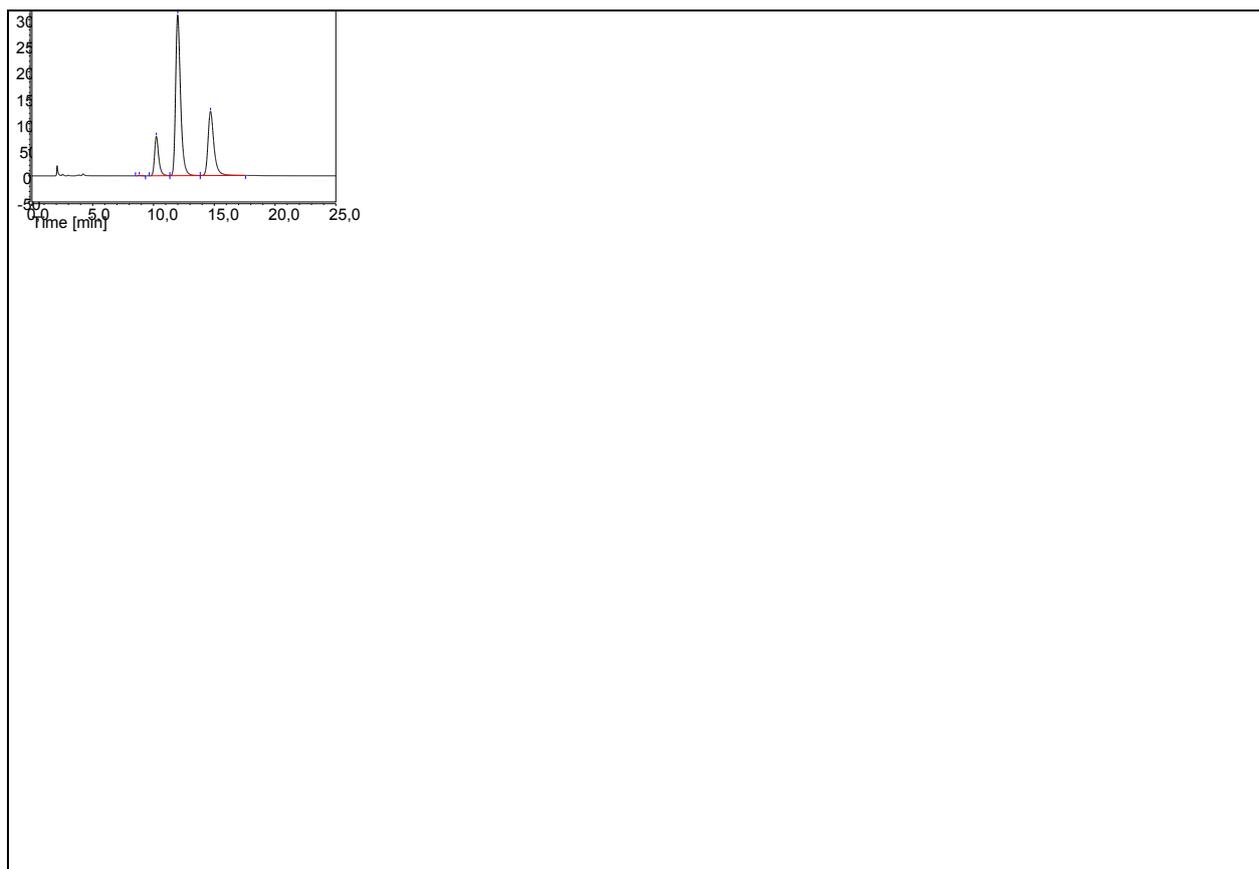
33 **Figure S3. HPAEC-PAD profile of sugars present in native XG**

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35 **Table S1. Integration results for the sugar content in native XG evaluated by HPAEC-PAD**

No.	Peak Name	Retention Time min	Area nC*min	Height nC	Relative Area %
1	Arabinose	8,908	0,542	1,675	0,22
2	Galactose	10,333	45,164	112,286	18,01
3	Glucose	12,108	137,582	287,884	54,85
4	Xylose	14,833	67,542	117,643	26,93
n.a.	Mannose	n.a.	n.a.	n.a.	n.a.
Total:			250,830	519,489	100,00

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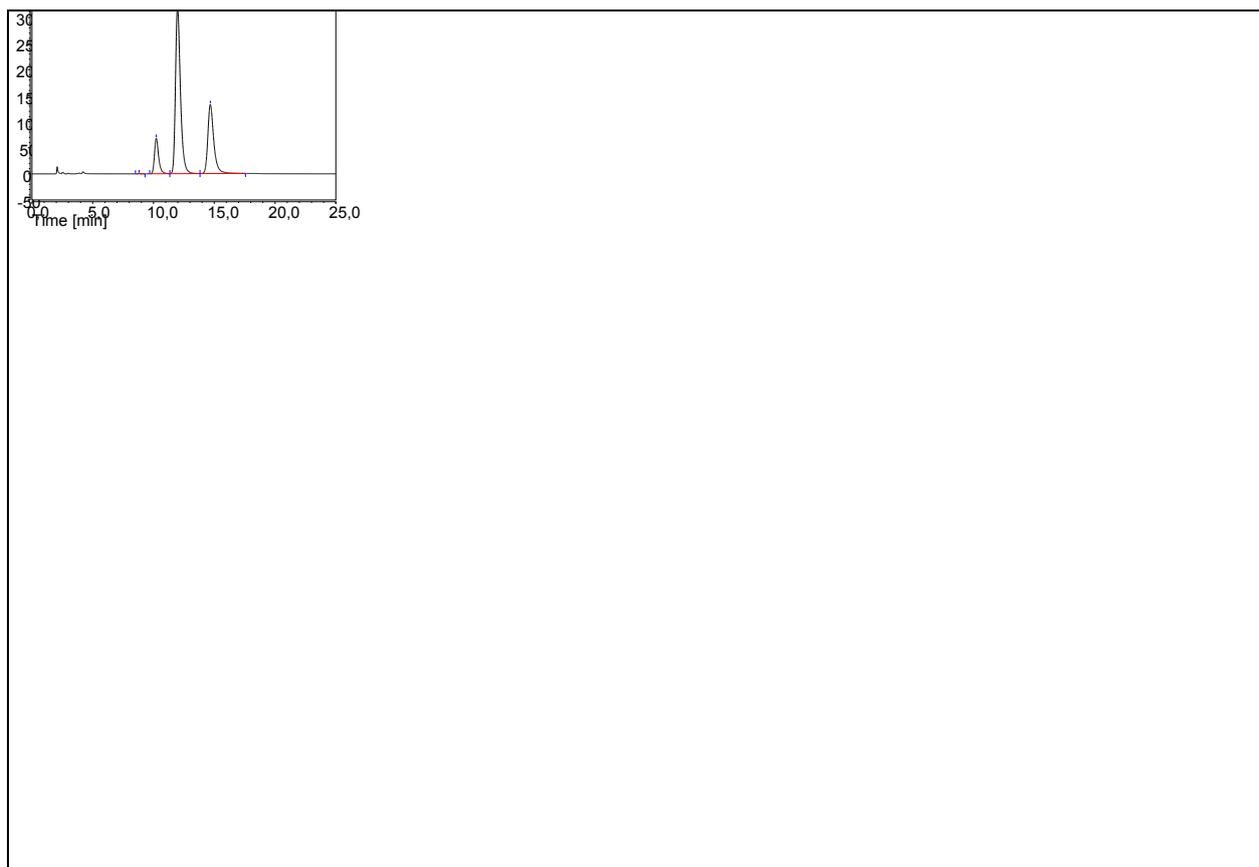
38 **Figure S4. HPAEC-PAD profile of sugars present in modified XG with 34% galactose removed.**

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40 **Table S2. Integration results for the sugar content in modified XG (34% galactose removed) evaluated by**
41 **HPAEC-PAD**

No.	Peak Name	Retention Time min	Area nC*min	Height nC	Relative Area %
1	Arabinose	8,833	0,183	0,597	0,07
2	Galactose	10,233	30,054	75,953	12,17
3	Glucose	11,992	146,595	309,178	59,35
4	Xylose	14,692	70,152	123,356	28,40
n.a.	Mannose	n.a.	n.a.	n.a.	n.a.
Total:			246,983	509,084	100,00

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44 **Figure S5. HPAEC-PAD profile of sugars present in modified XG with 41% galactose removed.**

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46 **Table S3. Integration results for the sugar content in modified XG (41% galactose removed) evaluated by**
47 **HPAEC-PAD**

No.	Peak Name	Retention Time min	Area nC*min	Height nC	Relative Area %
1	Arabinose	8,817	0,147	0,477	0,06
2	Galactose	10,225	27,122	68,526	10,63
3	Glucose	11,984	152,352	320,577	59,71
4	Xylose	14,675	75,542	133,008	29,61
n.a.	Mannose	n.a.	n.a.	n.a.	n.a.
Total:			255,162	522,589	100,00

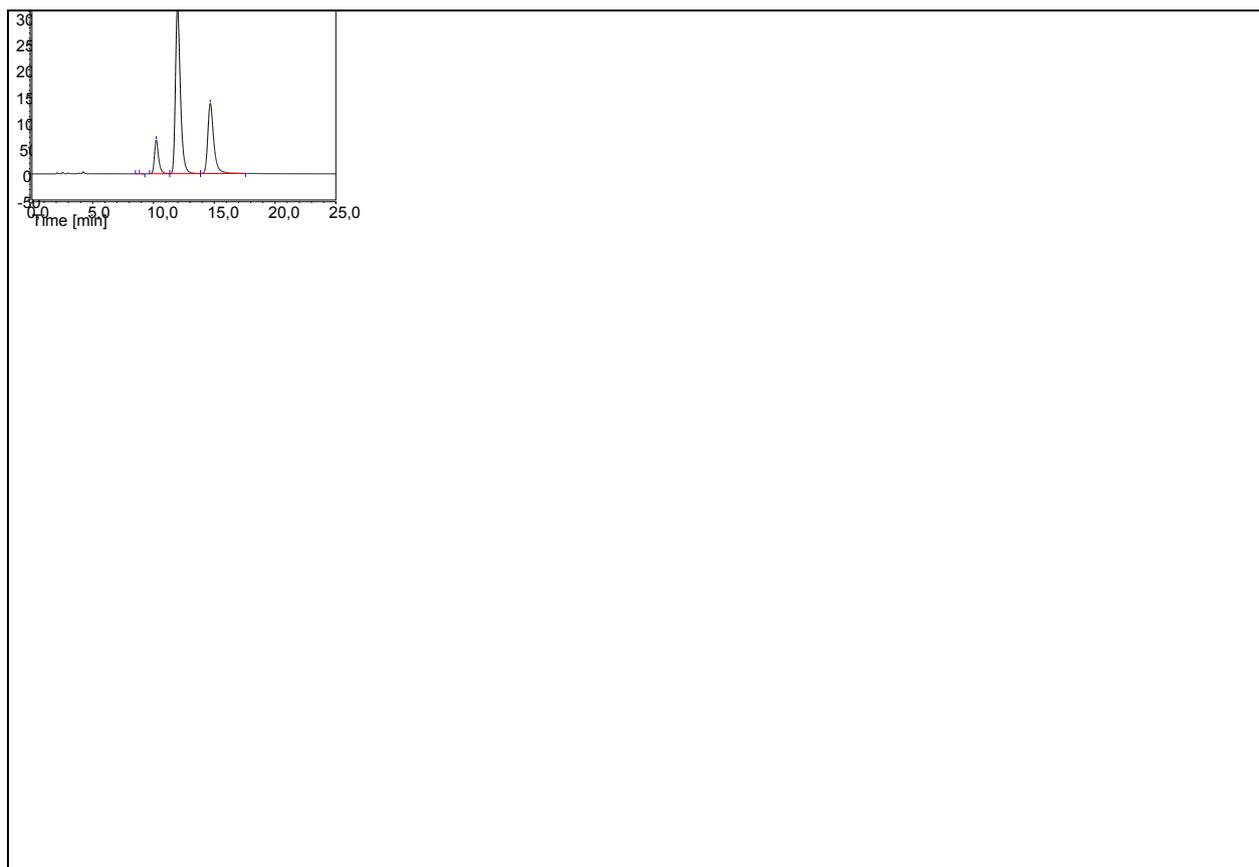
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54 **Figure S6. HPAEC-PAD profile of sugars present in modified XG with 43% galactose removed.**

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56 **Table S4. Integration results for the sugar content in modified XG (43% galactose removed) evaluated by**
57 **HPAEC-PAD**

No.	Peak Name	Retention Time min	Area nC*min	Height nC	Relative Area %
1	Arabinose	8,834	0,154	0,494	0,06
2	Galactose	10,225	25,779	65,100	10,09
3	Glucose	11,975	152,604	320,933	59,72
4	Xylose	14,667	76,987	135,063	30,13
n.a.	Mannose	n.a.	n.a.	n.a.	n.a.
Total:			255,524	521,591	100,00

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