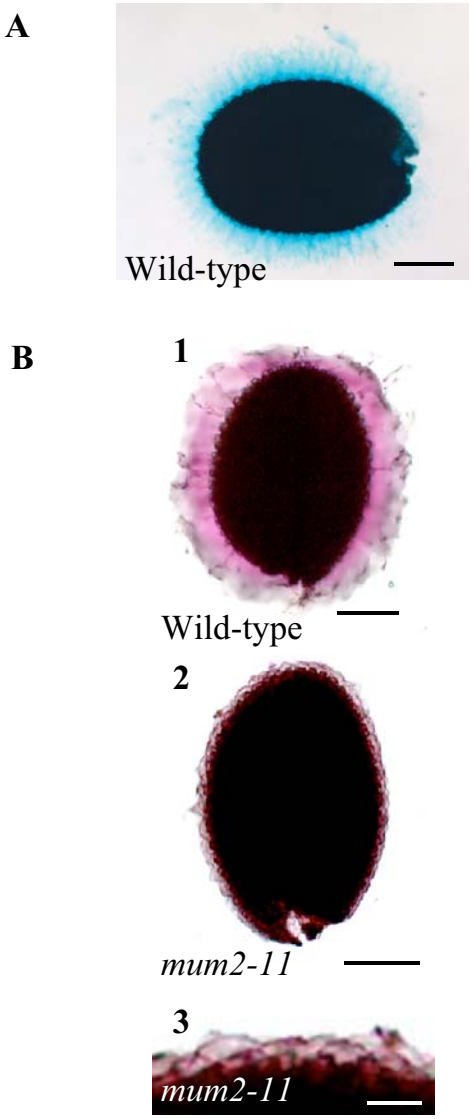
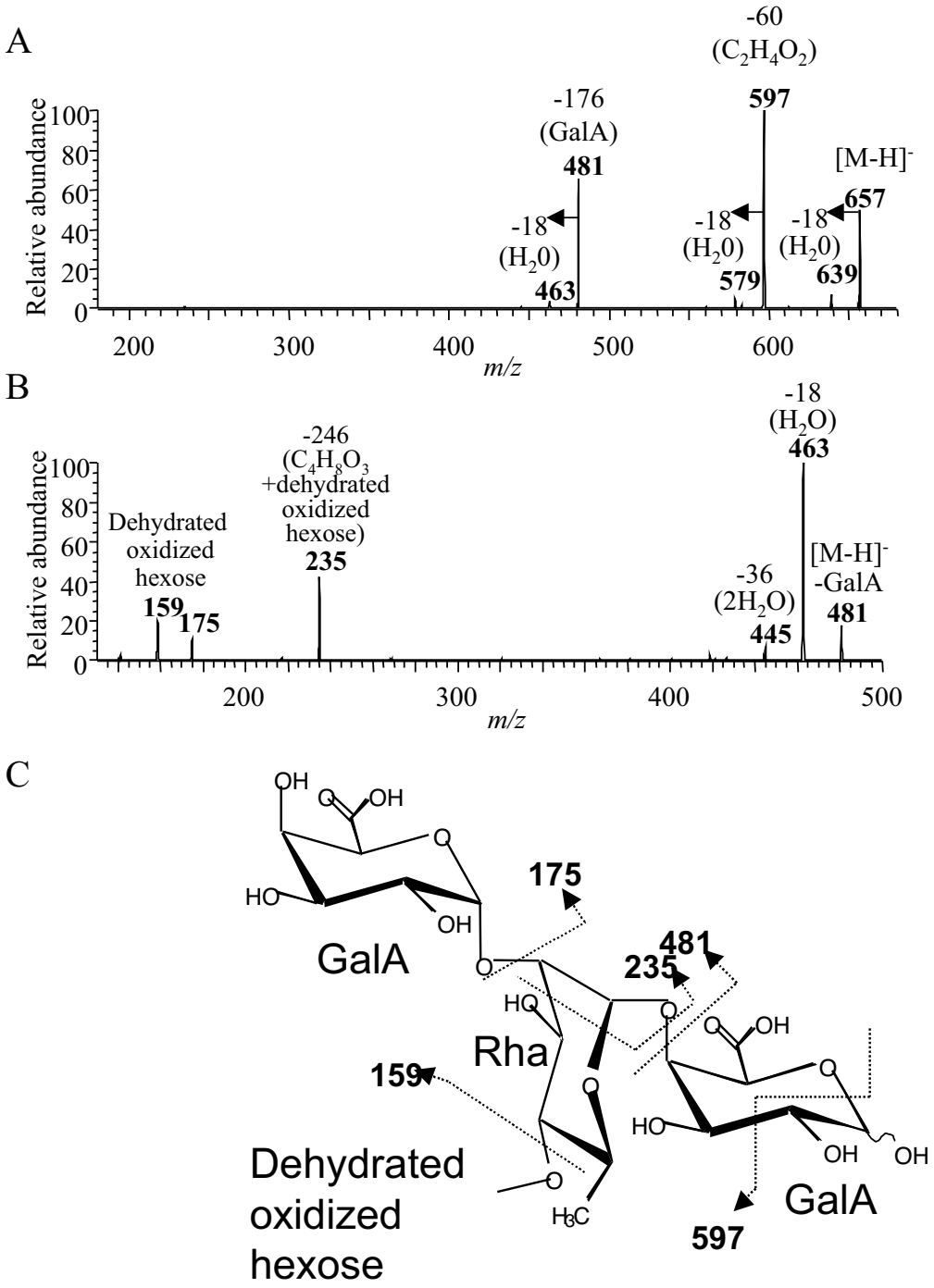
Supplemental Data. Macquet et al. (2007). A naturally occurring mutation in an Arabidopsis accession affects a β-D-galactosidase that increases the hydrophilic potential of rhamnogalacturonan I in seed mucilage.



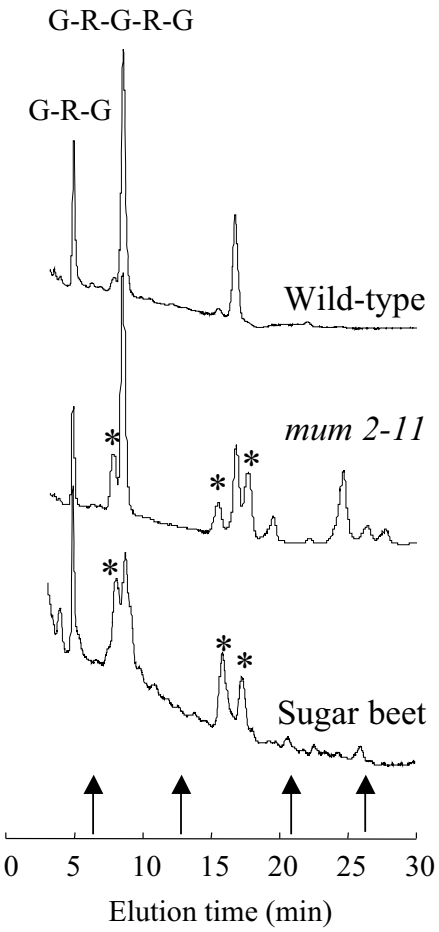
Supplemental Figure 1. Arabidopsis seed mucilage contains a β-D-galactosidase that affects mucilage swelling properties.

(A) Endogenous β-D-galactosidase activity present in wild-type seed mucilage visualised by *in situ* digestion of X-Gal. Scale bar 150 µm. **(B)** *mum2* mucilage does not swell when released from epidermal seed coat cells by sequential acid and alkali treatment. (1) Wild-type seed, (2) and (3) *mum2-11* seed. Scale bars: (A), (B 1) and (B 2), 150 µm; (B 3) 50 µm.



Supplemental Figure 2. The hexose unit is directly linked onto that of rhamnose in several oligomers present in *mum2-11* mutant hydrolysates obtained from RGase digestion of alkali and acid treated seeds.

(A) MS^2 spectrum of the parent ion at *m/z* 657 (oxidized and dehydrated Rha_1-$GalA_2$-$hexose_1$), **(B)** MS^3 spectrum of the daughter ion at *m/z* 481 (657>481>products) and **(C)** Diagram of fragmentation predicted to yield spectra in (A and B).



Supplemental Figure 3. Analysis of RGase digestion products from Arabidopsis seed inner mucilage layer or sugar beet modified hairy regions by high performance anion exchange chromatography.

Elution profiles are shown for RGase digests of Arabidopsis seed inner mucilage layer obtained from alkali and acid treated seeds or sugar beet modified hairy regions indicated as wild-type, *mum2-11* or sugar beet, respectively. Arrows indicate the elution time of RG-I home-made standards Rha_2-$GalA_2$, Rha_3-$GalA_3$, Rha_4-$GalA_4$ and Rha_5-$GalA_5$ from left to right. *, additional peaks common to *mum2-11* and sugar beet hydrolysates. G-R-G and G-R-G-R-G indicate Rha_1-$GalA_2$ and Rha_2-$GalA_3$ oligomers, respectively, identified in mass spectrometry analysis.