**Supplementary Table 1.** Relationship between the genotypes’ mucilage polysaccharide composition and the vapor pressure deficit (VPD) of their agroecological zones (linear regression, at P ≤ 0.05, n = 24).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dependent variable | Independent variable | df | Mean square | F | P-value | R2 |
| GalactoseFucoseMannoseGlucoseArabinoseXyloseGlucuronic acid | VPDVPDVPDVPDVPDVPDVPD | 1111111 | 9.4026.830.0154.190.411.113.54 | 3.234.100.0104.550.341.131.97 | 0.086 NS0.055 NS0.92 NS0.055 NS0.56 NS0.29 NS0.17 NS | 0.120.15<0.00010.170.0150.0490.082 |

NS = not significant

**Supplementary Table 2.** Relationship between the genotypes’ mucilage saturation water content and its polysaccharide composition (multiple regression, at P ≤ 0.05, n = 24).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model/Variable | df | Mean square | F | P-value | R2 |
| RegressionGalactoseFucoseMannoseGlucoseArabinoseXyloseGlucuronic acid | 61111111 | 13034.976814.6931.514825.555841.56886.384572.6630882.46 | 1.920.800.000.090.680.100.534.18 | 0.13 NS0.37 NS0.87 NS0.53 NS0.12 NS0.94 NS0.35 NS0.058 NS | 0.400.03< 0.01< 0.010.41< 0.01< 0.010.16 |

 NS = not significant

**Supplementary Figure 1.** Relationship between the genotypes’ mucilage saturation water content and the vapor pressure deficit (VPD) of their agroecological zones (NS = not significant at P ≤ 0.05).