

Supplemental Data:

Table S1

Table S2

Table S1. SGs and ASGs are reduced in seeds from *ugt80A2,B1* mutants of *Arabidopsis*. Mass spectral signals after normalization to internal standards from ESI-MS/MS analysis of SGs and ASGs are shown for wild-type and *ugt80A2,B1* seeds. SGs and ASGs containing sitosterol, campesterol, and stigmasterol are indicated separately. Sitosteryl, campesteryl, and stigmasteryl SGs and ASGs as fractions of the total SGs and ASGs, respectively, are shown in parentheses. Fractions of each ASG type (16:0, 18:3, 18:2, 18:1) of the total ASG for each sterol are given in parentheses in italics. SG and ASG as fractions of the total sterol conjugates are shown in parentheses in bold. Standard deviations (sd) are indicated. Total SG and total ASG are the sums of sitosteryl, campesteryl and stigmasteryl glucosides. The values indicate significant differences in all SG and ASG compounds analyzed in wild-type versus *ugt80A2,B1*: $P < 0.005$ ($n = 5$ biological replicates). These data are represented in Figure 5.

	wild-type	sd	<i>ugt80A2,B1</i>	sd	Ave. fold difference
Sitosteryl					
SG	2.60 (0.77)	0.33	0.38 (0.80)	0.21	7
ASG total	0.33 (0.72)	0.06	0.017 (0.87)	0.007	19
16:0 SG	0.18 (0.56)	0.04	0.012 (0.71)	0.003	15
18:3 SG	0.031 (0.09)	0.005	0.0004 (0.02)	0.0005	78
18:2 SG	0.033 (0.10)	0.005	0.0026 (0.15)	0.0025	13
18:1 SG	0.080 (0.24)	0.013	0.0020 (0.12)	0.0019	41
Campesteryl					
SG	0.49 (0.14)	0.05	0.038 (0.08)	0.024	13
ASG total	0.11 (0.25)	0.02	0.0019 (0.10)	0.0007	61
16:0 SG	0.071 (0.62)	0.018	0.0009 (0.46)	0.0005	83
18:3 SG	0.0071 (0.06)	0.0017	0.0004 (0.19)	0.0004	20
18:2 SG	0.0095 (0.08)	0.0021	0.0003 (0.14)	0.0001	37
18:1 SG	0.027 (0.23)	0.004	0.0004 (0.21)	0.0003	67
Stigmasteryl					
SG	0.31 (0.09)	0.06	0.055(0.12)	0.030	6
ASG total	0.011 (0.03)	0.0026	0.0006 (0.03)	0.0004	18
16:0 SG	0.0044 (0.39)	0.0017	0.0002 (0.30)	0.0003	23
18:3 SG	0.0015 (0.13)	0.0008	0.0001 (0.11)	0.0001	23
18:2 SG	0.0020 (0.18)	0.0006	0.0002 (0.31)	0.0003	10
18:1 SG	0.0035 (0.30)	0.0007	0.0002 (0.28)	0.0004	20
Total SG	3.40 (0.88)	0.43	0.47 (0.96)	0.26	7
Total ASG	0.45 (0.12)	0.08	0.020 (0.04)	0.007	23
SG + ASG	3.85	0.49	0.49	0.27	8

Table S2. Normalized mass spectral signals for phospholipids versus sterol glycolipids. Phosphatidylcholine (PtdCho) and phosphatidylethanolamine (PtdEtn) mass spectral signals from wild-type and *ugt80A2,B1* seed extracts were determined in comparison to SG and ASG. While mass spectral signals per mg seed weight significantly decreased ($P < 0.005$) for SG and ASG lipids in *ugt80A2,B1* mutants relative to wild-type, mass spectral signals for PtdCho and PtdEtn lipids are not statistically different. Normalized mass spectral signal averages and standard deviations are indicated for $n = 5$ biological replicates.

Lipid species	Normalized mass spectral signal per mg seed weight		P value
	wild-type	<i>ugt80A2,B1</i>	
PtdCho	45.0 ± 8.3	62.4 ± 11.8	0.03
PtdEtn	12.9 ± 1.5	12.8 ± 1.0	0.96
SG	3.40 ± 0.43	0.47 ± 0.26	0.0000012
ASG	0.45 ± 0.08	0.02 ± 0.01	0.0000021