**Table S7**: Summary of mutant phenotypes

| Gene | Allele | Sucrose dependence | IBA or 2,4-DB response | Peroxisome distribution | Peroxisome size | PTS2 processing | PTS1 import |
|------|--------|--------------------|------------------------|-------------------------|-----------------|-----------------|-------------|
| SDP1 | sdp1-7 | Wt | Wt | Clustered | Wt | ND | Wt |
| PXA1 | pxa1-4 | Dependent | Resistant | Clustered | Wt | Wt | Wt |
| ACX1 | acx1-4 | Wt | Resistant | Clustered | Large | Wt | Wt |
| ACX2 | acx2-2 | Wt | Wt | Clustered | Large | Wt | Wt |
|      | acx2-3 | Wt | Wt | Clustered | Large | Wt | Wt |
| MFP2 | mfp2-6 | Partial | Wt | Clustered | Large | Defect | Defect |
|      | mfp2-7 | Wt | Slight resistance | Clustered | Large | Wt | Wt |
|      | mfp2-8 | Partial | Wt | Clustered | Large | Defect | Defect |
|      | mfp2-9 | Partial | Wt | Clustered | Large | Defect | Wt |
| PED1 | ped1-4 | Dependent | 2,4-DB resistant | Clustered | Large | Defect | Defect |
|      | ped1-5 | Dependent | Resistant | Clustered | Large | Defect | Defect |
| MLS | mls-4 | Partial | Wt | Clustered | Wt | Wt | Wt |
| ICL | icl-3 | Wt | Wt | Clustered | Wt | Wt | Wt |
|      | icl-4 | Wt | Wt | Clustered | Wt | Wt | Wt |
|      | icl-5 | Partial | Wt | Clustered | Wt | Wt | Wt |
| PMDH1 | pmdh1-2 | Wt | 2,4-DB resistant | Clustered | Wt | ND | Wt |
| CHY1 | chy1-5 | Dependent | Resistant | Clustered | Large | Defect | Defect |
|      | chy1-6 | Dependent | Resistant | Clustered | Large | Defect | Defect |
|      | chy1-7 | Dependent | Resistant | Clustered | Large | Defect | Defect |
| MDAR4 | mdar4-5 | Dependent | Wt | Clustered | Wt | ND | Wt |
|      | mdar4-6 | Dependent | Wt | Clustered | Wt | ND | Wt |
|      | mdar4-7 | Dependent | Wt | Clustered | Wt | ND | Wt |
| LON2 | lon2-8 | Wt | Resistant (lateral roots) | ND | Large | Defect | Defect |
|      | lon2-9 | Wt | Slightly resistant (lateral roots) | ND | Large | Wt | Defect |
|      | lon2-10 | Wt | Resistant (lateral roots) | ND | Large | Defect | Defect |
| PXN | pxn-4 | Wt | Wt | ND | Large | Wt | Wt |
|      | pxn-5 | Wt | Wt | ND | Large | Wt | Wt |
|      | pxn-6 | Wt | Wt | ND | Large | Wt | Wt |
|      | pxn-7 | Wt | Wt | ND | Large | Wt | Wt |
| DRP3A | drp3a-4 | Wt | Wt | Wt | Large | ND | Wt |
|      | drp3a-5 | Wt | Wt | Wt | Large | ND | Wt |
| PME31 | pme31-1 | Wt | Wt | Clustered | Wt | ND | Wt |
|      | pme31-2 | Wt | Wt | Clustered | Wt | ND | Wt |
|      | pme31-3 | Wt | Wt | Clustered | Wt | ND | Wt |

ND, not determined.