

Strategic Breeding Approaches: Harnessing Molecular and Phenotypic Markers to Overcome Quinoa's Flower Morphology Bottlenecks

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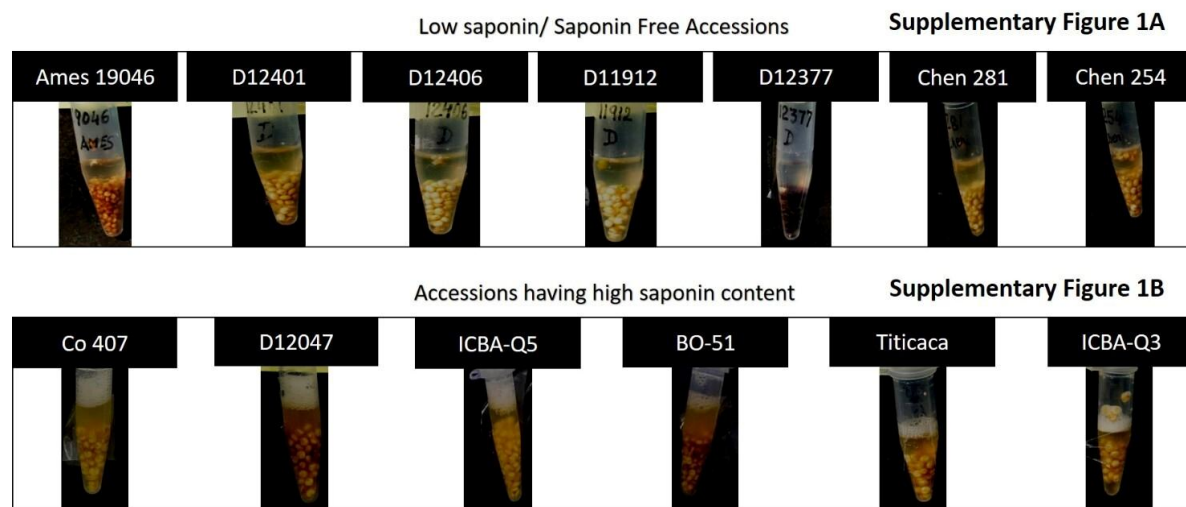
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Supplementary Figures

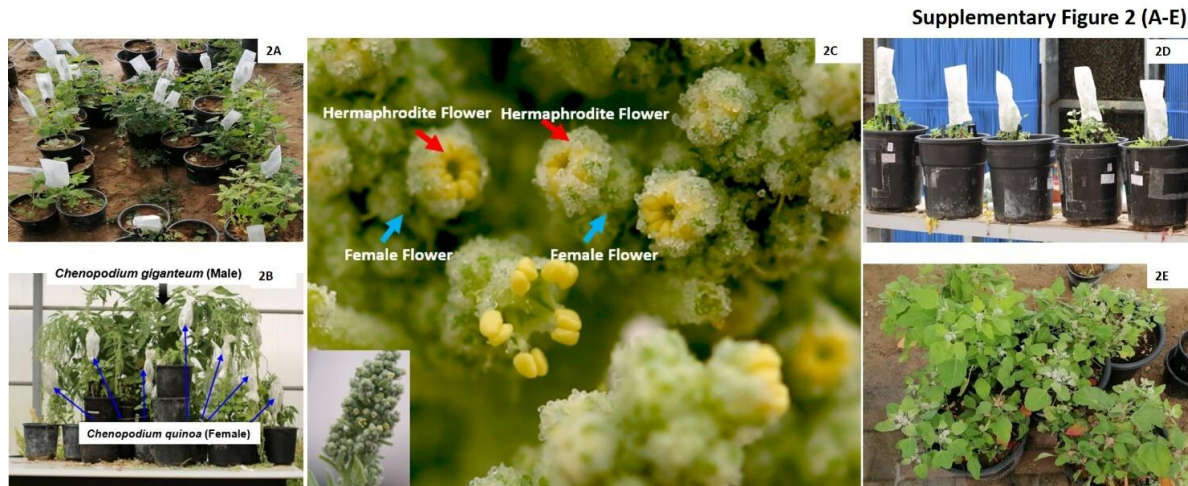
Supplementary Figure 1A: Seven quinoa accessions showing saponin free/ low saponin trait identified through the afrosimetric method (Michael J Koziol 1991).

Supplementary Figure 1B: Six quinoa accessions showing high saponin trait identified through the afrosimetric method (Michael J Koziol 1991).



Supplementary Figure 2 A-E: Different strategies applied for obtaining the quinoa crosses:

- **2A:** Manual crossing of '*Chenopodium quinoa* × *Chenopodium quinoa*' by removing hermaphrodite flowers
- **2B:** Manual crossing of '*Chenopodium quinoa* × *Chenopodium giganteum*' by removing hermaphrodite flowers
- **2C:** Close up view of hermaphrodite and female flowers separately
- **2D:** Crossing through forced synchronization of flowering &
- **2E:** Natural crossing

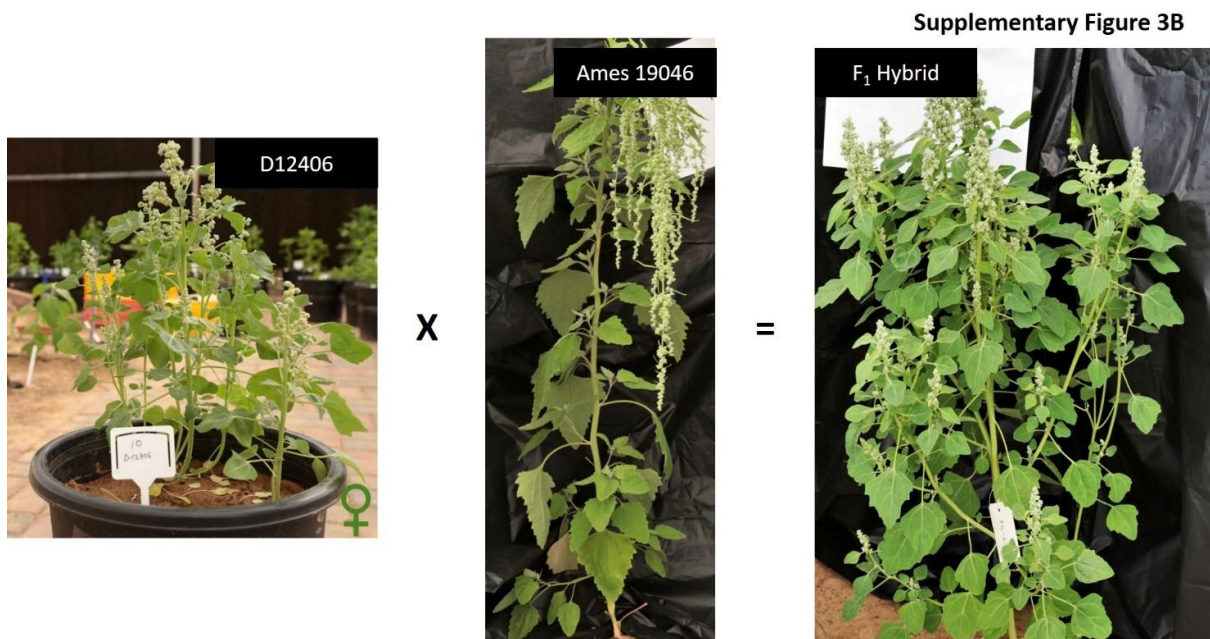


Supplementary Figure 3:

- **3A:** Figure presenting cross Chen254 (*Chenopodium quinoa*) × Ames19046 (*Chenopodium giganteum*).

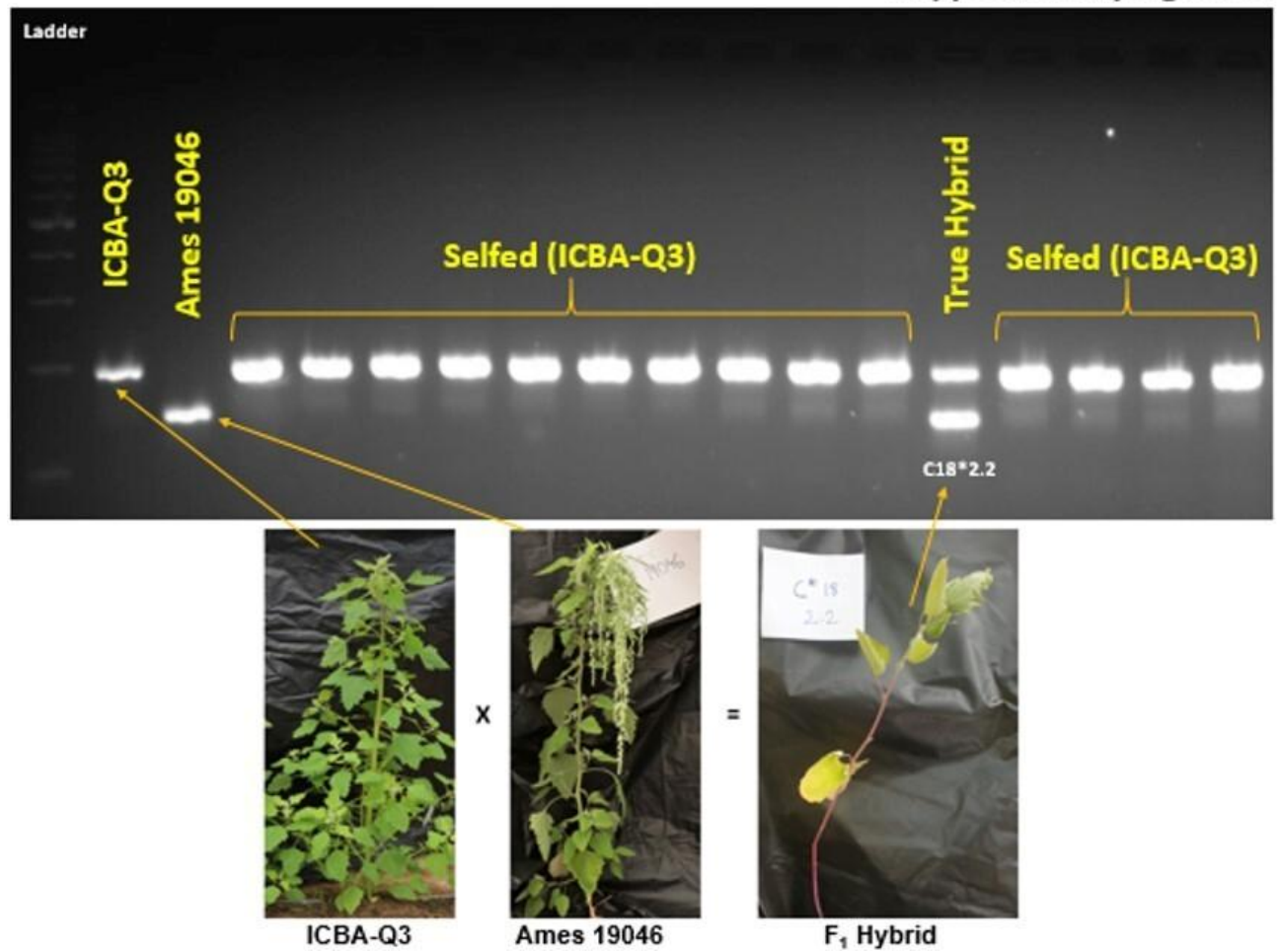


- **3B:** D12406 (*Chenopodium quinoa*) × Ames19046 (*Chenopodium giganteum*)

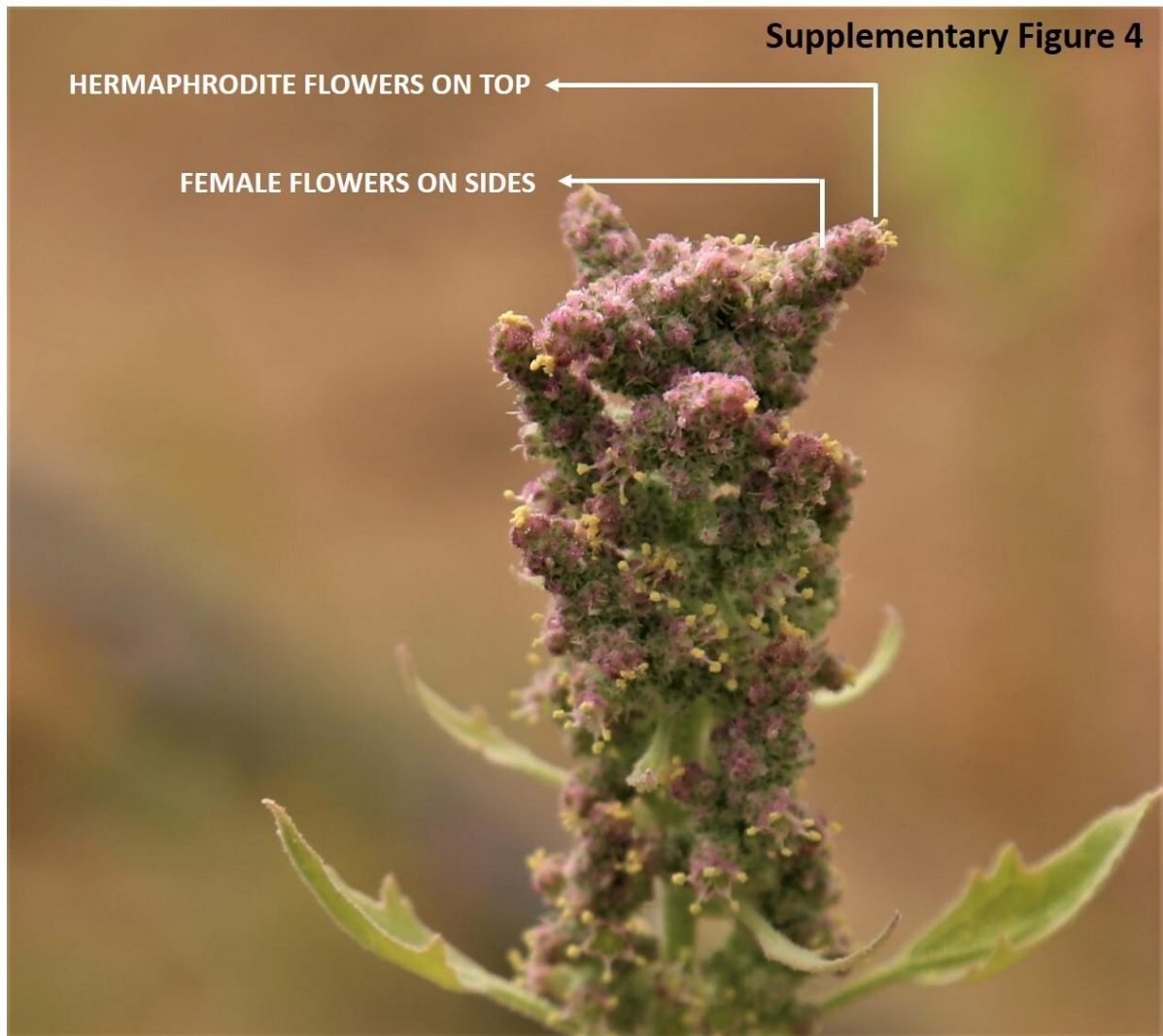


- **3C:** ICBA-Q3 (*Chenopodium quinoa*) × Ames19046 (*Chenopodium giganteum*).
Figure also presents hybridity testing results using an indel marker.

Supplementary Figure 3C



Supplementary Figure 4: Diagnostic pattern of hermaphrodite flowers identified in quinoa accession-D12047



Supplementary Figure 5: Picture showing the difference in panicle colour of parents and F1.

Supplementary Figure 5

