

Impacts of Drought Stress on Morphine Biosynthesis in *Papaver somniferum*

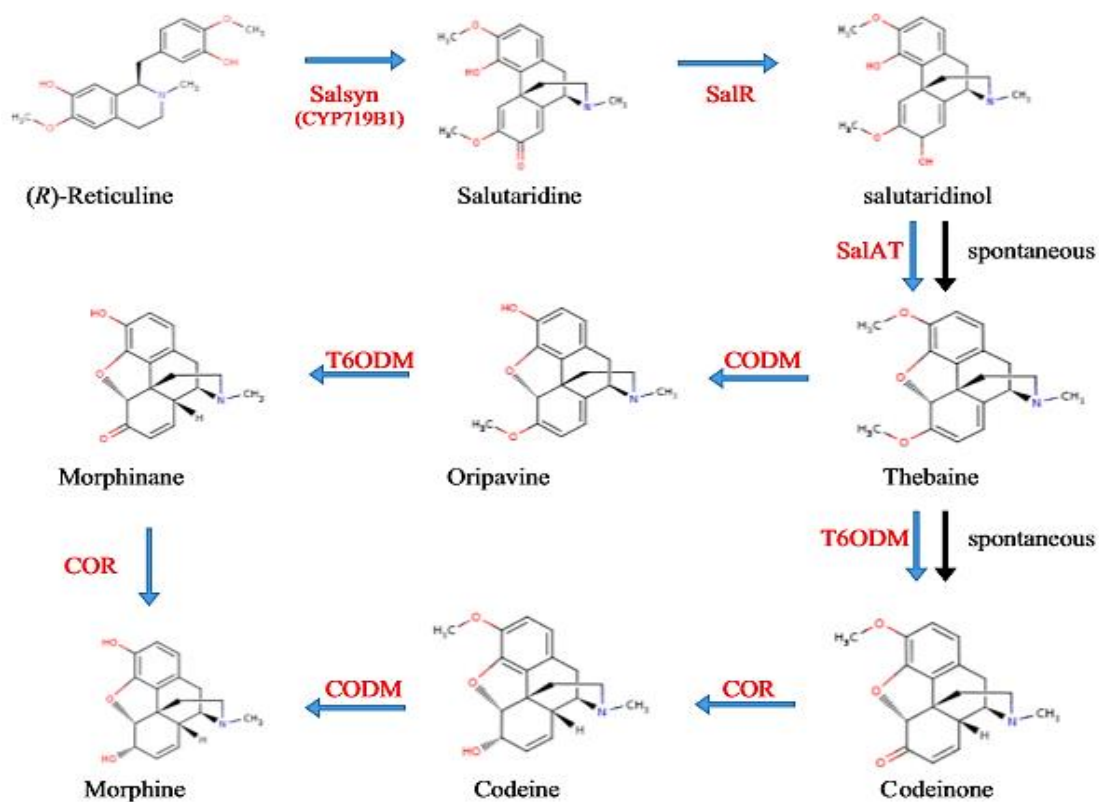


Figure S1. Morphine alkaloids metabolized by Salsyn enzymes (CYP719B1), SalR, SalAT, CODM, and T6ODM COR (Adapted from Beaudoin and Facchini, 2014; Hagel and Facchini, 2010; Beaudoin and Facchini, 2014).

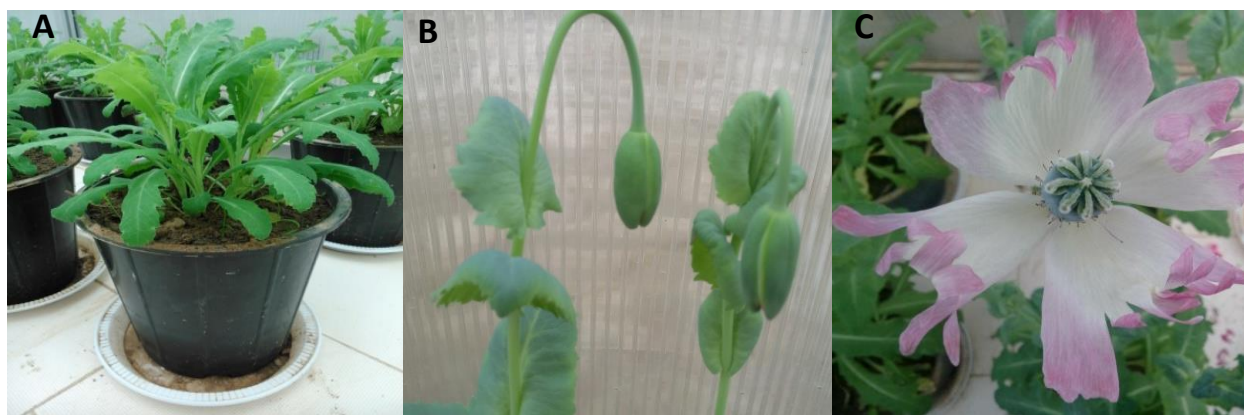


Figure S2. Poppy growth stages of seedling (A), plant bud (B), and petals with capsule (C), respectively.

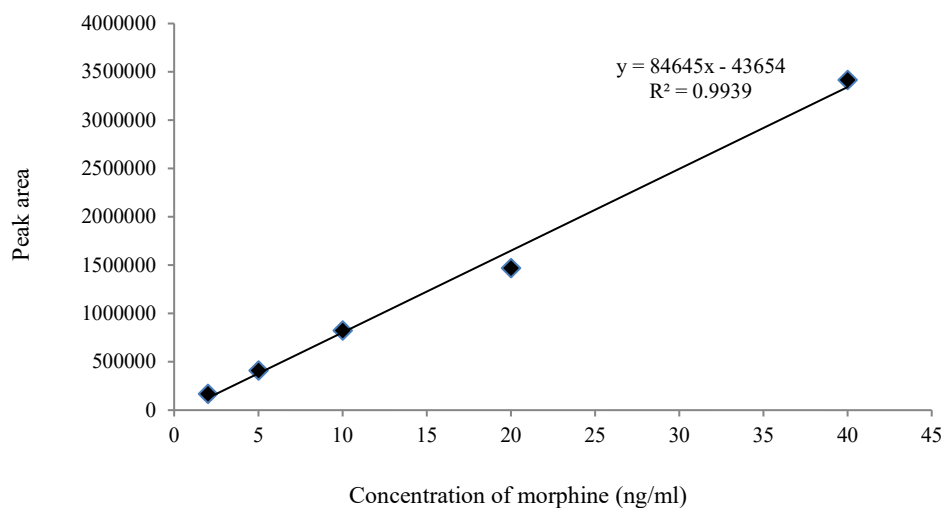


Figure S3. Simple linear regression of standard morphine concentrations (ng /ml)

Table S1. Regression of Variance for the correlation between standard morphine concentrations and related peak area

Regression of Variance:				
Source	DF	Mean Square	F Value	Pr > F
Regression	1	6.757824E12	489.43	0.0002
Error	3	13807509570		

Table S2. Analysis of Variance of different levels of drought stress effect on the transcript level of three genes (*T6ODM*, *COR*, and *CODM*) involved in the morphine production pathway in capsule cells of poppy plant.

Analysis of variance (T6ODM)				
Source	DF	Mean squares	F	Pr> F
Model	3	50.2	33.4	<0.0001
Error	8	1.5		

Analysis of variance (COR)				
Source	DF	Mean squares	F	Pr> F
Model	3	0.05	5	0.010
Error	8	0.01		

Analysis of variance (CODM)				
Source	DF	Mean squares	F	Pr > F
Model	3	0.13	13	0.003
Error	8	0.01		

Table S3. Analysis of Variance of different levels of drought stress effect on morphine concentration in capsule cells of poppy plant.

Analysis of variance morphine concentration				
Source	DF	Mean square	F Value	Pr> F
Regression	4	0.98177667	8662.99	< 0.0001
Error	10	0.00011333		