

Heat Stress Resilience Efficacy of Active Constituent of *Ocimum sanctum*

OBJECTIVE

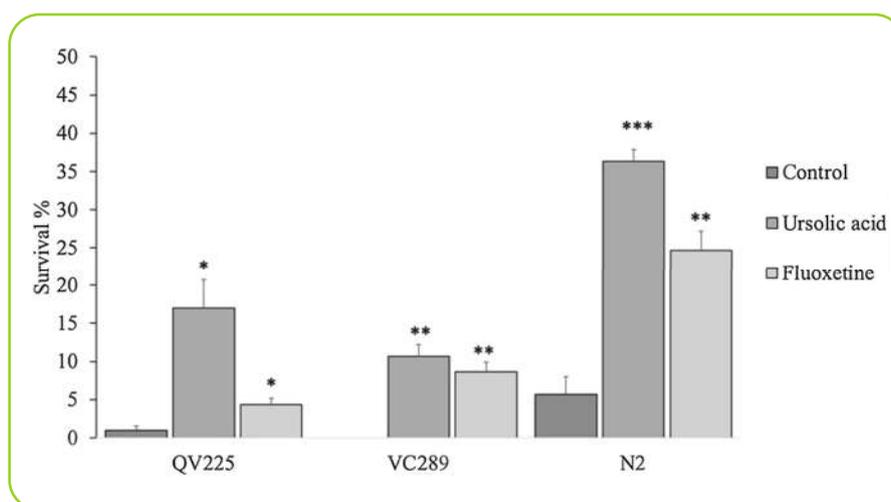
To investigate the effect of triterpenic acid: ursolic acid (UA) on heat stress in *C. elegans* wildtype and *skn-1*- and *prdx2*-deficient strains

MATERIALS AND METHODS

The *C. elegans* strains (N2 wildtype, QV225 *skn-1* deficient, and VC289 *prdx2* deficient) were used in this study. To measure effects of ursolic acid on heat stress resilience *C. elegans* were grown on standard nematode growth medium (NGM) plates at 20°C, until the late L4 stage was reached. *C. elegans* were treated with either 100 µM UA or 100 µM fluoxetine or DMSO 0.1% (Control) for 24 h. After treatment of *C. elegans* for 24 h, the plates were placed in an incubator at 37°C for 6 h, which was followed by recovery in an incubator at 20°C overnight. Nematodes were scored for survival 20 h post-heat shock. The previously reported results for the N2 wildtype were included here to allow a comparison to the other mutants QV225 and Vc289.

RESULTS

Figure: Effect of Ursolic acid on heat stress assay



Values expressed mean ± SD; n=3
**p<0.01 and * p<0.05 as compared to control

CONCLUSIONS

- Ursolic acid treatment significantly increased survival in all strains.
- In QV225 worms, treatment with ursolic acid increased survival up to 17% (p<0.05), and up to 10.7% (p<0.01) in VC289 worms.

OUTCOME

These data confirm that ursolic acid exhibited heat residence capabilities.

Reference:

Naß J, Abdelfatah S, Efferth T. The triterpenoid ursolic acid ameliorates stress in *Caenorhabditis elegans* by affecting the depression-associated genes *skn-1* and *prdx2*. *Phytomedicine*. 2021;88:153598.