Sickness and depressive-like behaviors induced by *E. coli* LPS are prevented *Valeriana glechomifolia*.

L. G. MÜLLER¹, M. BORSOI.², E. D. STOLZ¹, E. CASSEL⁴, R. F. VARGAS⁴, G. L. VON POSER¹ and RATES, S. M. K¹.

¹PPGCF-UFRGS, ²PPGNeuro-UFRGS, ⁴Faculdade de Engenharia-PUCRS

**Keywords:** antidepressant; lipopolysaccharide; sickness behavior; valepotriates; Valeriana glechomifolia.

**Introduction:** *V. glechomifolia*, which is native to southern Brazil, presents antidepressant-like activity (Müller et al., Prog. Neuropsychopharmacol. Biol. Psychiatry, 36, 109, 2012) and valepotriates contribute to the pharmacological properties of *Valeriana* genus (Backlund & Moritz, Biochem. Sys. Ecol., 26, 309, 1998). It is known that systemic administration of pro-inflammatory citocines or some bacterial products to rodents triggers a condition named sickness behavior (SB), which is followed by a depressive behavior (Viana et al. J Neuroinflam. 7, 98, 2010). Also, depression can develop on an inflammation background in vulnerable patients (Frazure-Smith, Herz, 31, 64, 2006). Thus, we investigated the effects of a *V. glechomifolia* supercritical carbon dioxide (90 bar, 40°C) extract enriched in valepotriates (VAL) on mice sickness and depressive behaviors induced by stressful+inflammatory stimuli.

**Methods:** Mice (25-35g) were submitted to a swimming session (6 min) 30 min before receiving LPS (600 µg/kg, i.p.) or saline (SAL) and evaluated in open field and tail suspension tests (TST) 6h and 24h later. VAL (10 mg/kg, p.o.) or imipramine (IMI, 20 mg/kg, p.o.) were administered 1h before swimming (*T1*); or 5h (*T2*) or 23h (*T3*) after LPS. Results (mean±SEM; n=8-10) were analyzed by two-way ANOVA followed by *post hoc* Student-Newman-Keuls. UFRGS Ethical Committee Approval - 22648.

**Results/Discussion:** LPS administration reduced the number of crossings in the open field (SAL: 159±9; LPS: 79±8) and increased the immobility on TST (SAL: 161±6s; LPS: 201±8s) as expected. Only VAL prevented LPS-induced reduction in the number of crossings (*T1*: 147±12; *T2*: 153±16) demonstrating its protective effects against sickness behavior. Mice immobility on TST was reduced by IMI (*T1*:138±9s; *T3*:123±10s) and VAL (*T1*:165±10s; *T2*:150±10s; *T3*:132±10s), confirming their antidepressant activity.

**Conclusion:** VAL exerts antidepressant-like effects and prevents LPS-induced SB. These results provide new data on the range of action of valepotriates. Further studies into how VAL acts on neuro inflammation are needed.

**Financial support:** CAPES.