Bipolar disorder (BD) is a chronic and severe psychiatric disorder that is associated with alternate states of depression and mania. Many studies have suggested that oxidative stress mediates neurological alterations in neuropsychiatric disorders and is involved in the etiology and progression of BD. Blueberry (Vaccinium virgatum) is a fruit that have potent antioxidant and anti-inflammatory properties. In this context, the aim of study was to investigate the protective effects of blueberry extract in animal model of mania induced by ketamine in rats. The model was applied in male Wistar rats (90-day-old, 250–300 g). Animals were pretreated with blueberry extract (200mg/kg, p.o.) or vehicle, once a day for 14 days. Between days 8 and 14, rats also received an injection of ketamine (25 mg/kg, i.p.) or vehicle. On the last day, animals received ketamine or vehicle 30 minutes before the evaluation of locomotor activity in the open-field test. Rats were submitted to euthanasia immediately after the open-field test and hippocampus (HP) was dissected to evaluation of oxidative stress parameters such as thiobarbituric acid reactive substances (TBARS), total thiol content, catalase (CAT) and superoxide dismutase (SOD) activities. Our results indicated that blueberry extract (200 mg/kg) prevented ketamine-induced hyperlocomotion (P<0.05 using two-way ANOVA followed by Bonferroni post-hoc test). Moreover, in the HP, blueberry extract (200 mg/kg) prevented the increase in TBARS levels induced by ketamine (P<0.05), but no alterations were observed in thiol content. On the other hand, blueberry extract was able to prevent the decrease in SOD and CAT activity induced by ketamine (P<0.05). In conclusion, our data showed that blueberry extract administration prevents hyperlocomotion and oxidative stress induced by ketamine. As a natural and promising compound, blueberry extracts should be considered a good alternative for prevent manic episodes.

Keywords: Bipolar Disorder, Blueberry extract, Oxidative stress

Acknowledgment: CNPq, CAPES, FAPERGS