Introduction: Ipriflavone (7-isopropoxy-3-phenyl-4H-1-benzopyran-4-one) is a synthetic derivative of naturally occurring isoflavone used for prevention and treatment of osteoporosis. It is derived from daidzein, a natural isoflavone found in soy. Studies of Feuer et al. (1981) demonstrated cardioprotection in rabbits treated for eight days with daily oral ipriflavone 30 mg/kg, observing oxygen consumption decreased in the isolated heart. Ipriflavone is a lipophilic substance with no desirable solubility in water at 37°C which is not suitable for intravenous (IV) and oral administration. Self-emulsifying drug delivery systems (SEEDS) is a promising technology to improve the bioavailability of poorly water-soluble drugs. **Objective:** Evaluate the potential cardioprotective effect of ipriflavone in SEDDS in spontaneously hypertensive rats (SHR) submitted to norepinephrine (NE) stimulation. **Methods:** All the procedures were approved by CEUA/UFOP (number 2013/02). Female SHR rats (180 to 250 g) received vehicle or ipriflavone (30 mg/kg) in SEDDS by oral route. The cardioprotective activity of ipriflavone was evaluated for its ability to prevent arterial pressure (AP) and electrocardiographic (ECG) alterations induced by IV administration of 3 and 10 µg/kg of NE. It was evaluated the QT, QTc, PR and QRS intervals of ECG, systolic and diastolic AP before and after adrenergic stimulation. Statistical analysis used ANOVA and Tukey post-hoc test. Significance was accepted when P < 0.05. **Results:** The ipriflavone did not cause changes of baseline systolic AP (145.1 ± 5.56 mmHg and 135.7 ± 8.51 mmHg, respectively for control and treated groups) and ECG signals in SHR. It was observed a significant increase of the AP after NE administration in both doses for all experimental groups. The PR and QRS intervals of ECG were not altered by NE. The ipriflavone in SEDDS was able to reduce prolongation of QT (16.1% and 19.1%) and QTc (17.4% and 21.2%) intervals after 3 and 10 µg/kg of NE, IV, compared to animals that received vehicle, showing a significant reduction after administration of 10 µg/kg of NE. It was observed QT values of 93.5 ± 7.45 ms and 101.3 ± 5.20 ms for control group and 79.6 ± 2.68 ms and 79.9 ± 2.91 ms for treated group. For QTc, it was observed values of 149.4 ± 13.42 ms and 167.2 ± 10.66 ms for control group and 120.0 ± 5.27 ms and 130.0 ± 5.06 ms for treated group intervals after 3 and 10 µg/kg of NE. **Conclusion:** Considering the QT interval prolongation is a predictor of cardiac arrhythmias, reducing its extension by previous administration of ipriflavone after sympathetic stimulation by NA indicates that this drug employed in SEDDS and administered by oral gavage has cardioprotective activity in spontaneously hypertensive rats.

**Keywords:** cardioprotection, ipriflavone, spontaneously hypertensive rats.

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