



## VASORELAXANT EFFECT OF OF *Plectranthus barbatus* Andrews LEAVES EXTRACT IN ISOLATED AORTA OF HYPERTENSIVE RATS

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### **INTRODUCTION**

*Plectranthus barbatus* Andrews, popularly known as Brazilian boldo, is used in folk medicine to treat several disorders, including cardiovascular illnesses. However, its effect on the modulation of vascular function is unknown. This study aimed to investigate the relaxant effect of the hydroethanolic extract of *P. barbatus* leaves (PBHE) in isolated rat aorta.

### **MATERIAL AND METHODS**

To assess the vasorelaxant effect, aortic rings from normotensive (NTR) and hypertensive (SHR) rats, with and without endothelium, were exposed to cumulative concentrations of PBHE (0.3 to 1000 µg/mL). The mechanisms involved in the vasorelaxation were also investigate. All the experimental protocols were previously approved by the Ethics Committee for the Use of Animals (CEUA) of the University of Vale do Itajaí (053/18p).

### **RESULTS**

The PBHE promoted an endothelium-dependent vasodilator effect on the aortic rings of NTR and SHR. In the presence of propranolol (non-selective β-adrenergic receptor antagonist) or indomethacin (non-selective cyclooxygenase enzyme inhibitor), there was no change in the vasorelaxant effect of the extract, while in the presence of atropine (non-selective muscarinic receptor antagonist) there was a

slight reduction in its vasorelaxant effect. Incubation of L-NAME (non-selective nitric oxide synthase enzyme) or ODQ (soluble guanylate cyclase enzyme) was not able to significantly affect the relaxation. The addition of TEA (blocker of Ca<sup>2+</sup>-activated K<sup>+</sup> channels) or 4-aminopyridine (voltage-dependent K<sup>+</sup> channel blocker) was able to substantially reduce the relaxation effect of the extract, without interference of glibenclamide (ATP-sensitive K<sup>+</sup> channel blocker) or barium chloride (influx rectifier K<sup>+</sup> channel blocker). The PBHE was able to inhibit the contractile response against the addition of phenylephrine and CaCl<sub>2</sub>. The aortic contraction induced with KCl or caffeine was significantly reduced in the presence of the extract.

### **CONCLUSIONS**

In conclusion, the PBHE showed a vasorelaxant effect on the thoracic aorta of SHR, exclusively dependent on the endothelium with the of the transmembrane channels for Ca<sup>2+</sup>.

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