

Antidiarrheal activity of *Polypodium leucotomos*

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Abstract

The rhizomes of *Polypodium leucotomos* are used in traditional medicine for the treatment of diarrhea. Thus the methanol extract of *P. leucotomos* rhizomes was investigated for its antidiarrheal property against experimental diarrhea induced by castor oil in rats. Castor oil induced diarrhea, castor oil induced enteropooling and gastrointestinal motility test were used to investigate antidiarrheal activity of the rhizome extract at different concentrations (100 and 200 mg/kg body weight). The diarrheal episode was inhibited by 19% and 41.77% at the doses of 100 and 200 mg/kg respectively. The extract significantly ($p < 0.01$) lessened the intestinal volume ($1.93 \pm 0.18 - 1.60 \pm 0.06$ ml) compared to control (2.79 ± 0.18 ml) in castor oil induced enteropooling and also decreased in intestinal transit (16.26 - 27.93%) comparable to that of standard drug loperamide (5 mg/kg). These findings demonstrate that the rhizome extract of *P. leucotomos* rhizomes have excellent antidiarrheal activity.

Keywords: Antidiarrheal; castor oil; intestinal transit; *Polypodium leucotomos*

Introduction

Polypodium leucotomos (Polypodiaceae) is a rhizomatous fern, with thick creeping rhizome 8-15 mm in diameter, densely covered in the golden-brown scales which look like fur and popularly known as Samambaia (Das, 2007). The plant historically has been used to improve health in situations such as inflammatory disorders and skin diseases, whooping cough, diarrhea, hypertension, arthritis, and pains in joints and tendons (Nilesh et al., 2001; Das, 2007). *In vitro* and *in vivo* studies have shown its potential antioxidant effects to include the scavenging of superoxide anions, hydroxyl radicals and singlet oxygen (Gonzalez & Pathak, 1996; Gomes et al., 2001; Garcia et al., 2006). It has been shown to be effective as an immunomodulator (Gonzalez et al., 2000; Reyes et al., 2006; Gonzalez et al., 2007; Philips et al., 2009), anti-inflammatory (Cuellar et al., 2003), antipsoriatic (Vasänge-Tuominen et al., 1994; Navarro-Blasco & Sempere, 1998; Capote et al., 2006), procognitive, neuroprotective (Sempere et al., 2002) and ultraviolet light protectant (Siscovick et al., 2008; Gonzalez et al., 2010; Caccialanza et al., 2011; Tanew et al., 2012). The main plant chemicals identified from *P.*