

## Antispasmodic phytomedicine, from traditional utilization to rational formulation: functional approach

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### Abstract

The aim of this study was to assess traditional preparation used to treat infantile colic and to propose a rational formulation. We studied the antispasmodic effect *in vitro* on rat intestine using isometric transducer and rationalized the traditional preparation using functional approach. The crude aqueous extract of fifteen plants induced dose-dependent relaxation in rat intestine with an  $IC_{50}$  of  $164.7 \pm 1.2 \mu\text{g/mL}$ . With a new rational formulation, the  $IC_{50}$  was  $27.8 \pm 1.1 \mu\text{g/mL}$ , a very effective value when compared to antispasmodic drugs e.g. loperamide ( $IC_{50} = 49.6 \pm 1.1 \mu\text{g/mL}$ ), trimebutine ( $IC_{50} = 106.5 \pm 1.0 \mu\text{g/mL}$ ), phloroglucinol ( $IC_{50} = 119.1 \pm 1.1 \mu\text{g/mL}$ ), and pinaverium bromide ( $IC_{50} = 837.7 \pm 1.1 \mu\text{g/mL}$ ). This study validates traditional utilization the mixture as antispasmodic and demonstrates that functional approach can be used to optimize traditional preparation.

**Keywords:** Antispasmodic, Rat small intestine, infantile colic, medicinal plants, traditional medicine, phytotherapy.

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### Introduction

It is well known that excessive infant crying can be accompanied by abdominal pain as the result of gas, cramping, spasms and abnormal intestine contraction (Lobo et al., 2004). It is one of the most frequent visits to the paediatric emergency of new born babies (Calado et