TITLE: *Vernonia polyanthes* LESS. (ASTERACEAE BERCHT. & J. PRESL): A PROMISING NATURAL SPECIES WITH ANTIBIOTIC EFFECT

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ABSTRACT:

Vernonia polyanthes Less. (Asteraceae Bercht. & J. Presl), popularly known in Brazil as "assa-peixe", is a Brazilian native species widely used in the Traditional and Complementary Medicine. Traditionally, this medicinal plant is used to treat cold, flu, bronchitis, gastrointestinal and kidney disorders, uterine infections, ulcers and fever. With this context in mind, the present study aimed to realize the chemical characterization and to evaluate the antibiotic potential of dichloromethane fractions from leaves (DL-Vp) and flowers (DF-Vp) of *V. polyanthes*. The chemical characterization was carried out by High Performance Liquid Chromatography with Diode Array Detection (HPLC-DAD). The antibiotic potential was determined by the Minimum Inhibitory Concentration (MIC) using the broth microdilution method according to Clinical and Laboratory Standards Institute guidelines, and the Minimum Bactericidal Concentration (MBC) followed by the classification of the antibiotic effect using Andrews' method. The ATCC® reference strains of *Staphylococcus aureus* subsp. *aureus* (ATCC® 6538™, ATCC® 25923™ and ATCC® 29213™), *Escherichia coli* (ATCC® 10536™ and ATCC® 25922™), *Salmonella enterica* subsp. *enterica* serovar Choleraesuis (ATCC® 10708™), *Salmonella enterica* subsp. *enterica* serovar Typhimurium (ATCC® 13311™), and *Pseudomonas aeruginosa* (ATCC® 9027™ and ATCC® 27853™) were tested. The chemical characterization of DL-Vp and DF-Vp suggested the presence of flavones and flavonols in both of them. Considering these fractions, DL-Vp revealed the most expressive activity, being active against *E. coli* (ATCC® 10536™ and ATCC® 25922™), *S.* Choleraesuis (ATCC® 10708™), and *S.* Typhimurium (ATCC® 13311™), with MIC values of 625 µg/mL and bacteriostatic effect. Probably, the antibiotic effect is related to the presence of flavones and flavonols. These results suggest that *V. polyanthes* is a promising natural source of bioactive substances, like flavones and flavonols, with antibiotic potential which confer scientific support for its popular use mainly in gastrointestinal disorders caused by *E. coli* or *Salmonella* strains.

Keywords: *Vernonia polyanthes*; Flavonoids; Gastrointestinal diseases; *Salmonella*; *Escherichia coli*.

Development Agency: Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG) (Process n° CDS-APQ-04680-10) and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brazil (CAPES) - Finance Code 001.