TITLE: POTENTIAL ANTIBACTERIAL ACTIVITY FROM ACTINOBACTERIA CRUDE EXTRACTS AGAINST MULTIRESISTANT BACTERIA

AUTHORS: ANDRADE, VINÍCIUS 1; GARRIDO, L. M 1; FERREIRA, M. J. P 2; PADILLA, GABRIEL 1.

INSTITUTION: 1. DEPARTAMENTO DE MICROBIOLOGIA, INSTITUTO DE CIÊNCIAS BIOMÉDICAS, 2. DEPARTAMENTO DE BOTANICA, INSTITUTO DE BIOCIÊNCIAS, UNIVERSIDADE DE SÃO PAULO, SÃO PAULO, SP (AVENIDA PROFESSOR LINEU PRESTES, 1374, LAB 164, CEP 05508-000, SÃO PAULO-SP, BRASIL)

The indiscriminate use of antibiotics over the years has increased the number of multiresistant microorganisms, weakening of effectiveness of infection treatments. The presence of multiresistant bacteria in hospital environments is frequently associated with nosocomial infections, among them urinary infections, pneumonia and septicaemia, with high rates of death worldwide. In addition, the rate of discovery of new drugs has dropped dramatically in recent years. Therefore, new alternatives must be sought. Actinobacteria produce almost 80% of commercially available antibiotics, most of which are produced by the genera *Streptomyces* and *Micromonospora*. These bacteria are capable of producing bioactive secondary metabolites, among them, antibiotics. An innovative approach in the research for new antibiotics is the study of actinomycetes from unexplored environments, such as rivers and seas. This work evaluated the minimum inhibitory concentration (MIC) of crude extracts from nine actinobacteria strains isolated from the Tietê River, able to inhibit Gram negative bacteria producing carbapenemase *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* and for Gram positive multiresistants such as vancomycin resistant *Enterococcus* (VRE) and *Staphylococcus aureus* Methicillin-resistant (MRSA) by broth microdilution method. Extracts from isolate NBS 14/10 presented MIC_{50} values (256 μg / mL) for VRE and MRSA. The results indicate a positive antibacterial activity. The most promising extracts in terms of bioactivity will be evaluated by high-performance liquid chromatography on an analytical scale coupled with ultraviolet detection and mass spectrometry with electrospray ionization and quadrupole-type analyzer in time of flight in sequence (CLAE- UV (DAD) -EM / MS (ESI-QToF)). Such analysis will allow the preliminary detection of the complexity of the mixture of chemical constituents present in the extracts and the dereplication of the components from the exact data of mass and isotope ratio, together with the research to large databases, for the discovery of new metabolites with potential antibacterial actvity.

KEYWORDS: actinobacteria; antibiotics; mulresistant bacteria.

AGENCY: Financial support CAPES, FAPESP