



**Preliminary investigation of antimicrobial capacity from essential oil of
Liquidambar styraciflua L., Altingiaceae.**

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The little explored family Altingiaceae Horan, consisting of about fifteen species, divided into three genres: *Liquidambar* L., *Altingia* Noronha and *Semiliquidambar* HT. Chang (1). The genus *Liquidambar* is the best known of the family, and one of the species of this genus, *Liquidambar styraciflua*, commonly known as sweet gum, red gum and Liquidambar, is already acclimatized in Brazil, with a good adaptation in the Southern states and southeast (2). The leaves of this species have essential oil, and since the antimicrobial activity of essential oils is well known, we carried out a preliminary investigation of the antimicrobial ability of this essential oil, through the technique of diffusion in solid medium from the hole (3), with some modifications. The leaves of *L. styraciflua* were collected at EMBRAPA forests, Curitiba, PR. A voucher specimen was sent to the herbarium of the Federal University of Parana, to identify the species and receive the number of tipping. The extraction of the essential oil from the dried leaves of *L. styraciflua* was performed by hydrodistillation method, using the Clevenger apparatus. To achieve the antimicrobial tests were selected eight standard strains of gram-positive and gram-negative and five standard yeast strains. The essential oil was analyzed at four different concentrations by serial dilution procedure (1:2, 1:4, 1:8, 1:16), using dimethylsulfoxide as solvent. The positive controls used were ketoconazole and terbinafine solutions (50 µg/20 µL) for yeast, and standard antibiotic disks of NEWPROV company (Ampicillin 10 µg, Erythromycin 15 µg, Gentamycin 10 µg, Penicillin 10 µg, Vancomycin 30 µg and Tetracycline 30 µg) for bacteria, applying the methodology of the disk diffusion (4). The results of the antimicrobial activity were subjected to analysis using the statistical program SISVAR (5). The essential oil, in its lower dilution (1:2), showed antibacterial capacity of all tested strains except for *E. faecalis* (ATCC 29212) and *S. pyogenes* (ATCC 19615). The specie *S. aureus* (ATCC 25923) was the most sensitive to the antimicrobial action of the essential oil because it exhibited the same inhibition halo in the highest dilution (1:16). In the data analysis, it's possible to see that the action of the essential oil, in all its dilutions, has not overcome the action of antibiotics standards, but, there are similarities between some. The greatest inhibition capacity of the essential oil was to inhibit growth of *S. aureus* and *B. subtilis* (ATCC 6633), presenting a similar action to the standard Vancomycin, Penicillin, Ampicillin and Gentamicin ($p < 0.01$). Antifungal activity was observed only against *C. albicans* and *C. tropicalis*, which is the most sensitive to the action of the essential oil, however, the inhibition caused by the essential oil was lower than the reference standards used.

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