



Determination of *in-vitro* antimicrobial efficacy of commercially available generic and branded oral antibiotic suspensions in Galle, Sri Lanka against selected pathogens

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Abstract

Oral antibiotic suspensions are specifically designed for the pediatric population for the control and management of various infectious diseases. When considering generic antimicrobial agents, those should have the same active pharmaceutical ingredients as the branded medicine. This study aimed to comparatively evaluate *in vitro* efficacy of generic and branded commercially available selected oral antibiotic suspensions in Galle, Sri Lanka. The purchased oral antibiotic suspensions of amoxicillin with clavulanic acid (3 brands), clarithromycin (3 brands), and azithromycin (Generic + 3 brands) were evaluated for the physicochemical properties on the day of opening and seven-day intervals until day 28. Microbial assays for marketed suspensions were carried out using the disc diffusion method against *Staphylococcus aureus* (ATCC 25923) and *Escherichia coli* (ATCC 25922). The zones of inhibition were measured and statistically analyzed via a one-way ANOVA test. The highest inhibition zones of amoxicillin with clavulanic acid, clarithromycin, and azithromycin against *E. coli* were 30.48 ± 0.27 , 26.27 ± 0.25 , and 21.70 ± 0.51 mm respectively. Also, the highest inhibition zone for amoxicillin with clavulanic acid, clarithromycin, and azithromycin against *S. aureus* were 39.84 ± 0.64 , 26.45 ± 1.43 , and 27.00 ± 0.24 mm respectively. All diameters of generic and branded drugs of azithromycin in disc diffusion were equivalent against both *E.coli* and *S.aureus*. Zones of inhibition of both amoxicillin with clavulanic acid and azithromycin against *E.coli* have shown that there were significant differences with brands ($p=0.000$ and $p=0.019$). All oral suspensions were physicochemically stable and homogenous during the tested period. The *in-vitro* antimicrobial efficacy of generic antibiotic suspensions was similar to those of the branded suspensions and could be used interchangeably. It can be concluded that all the antibiotic suspensions have favorable physicochemical properties with promising antimicrobial efficacy.

Keywords: Antibiotic, Disc Diffusion, Oral Liquids, Physicochemical, Suspensions.

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