

MICROBIOLOGY

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Genomic characterization and molecular epidemiology of Colombian multidrug resistant *Acinetobacter baumannii* strains causing healthcare-associated infections (HAI)

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In Latin American, the high prevalence of multidrug resistant *Acinetobacter baumannii* strains is one principal cause of healthcare associated infections (HAI). High frequency multidrug resistant strains have been found in several hospitals throughout Colombia, which has caused epidemic outbreaks. In this study, we analyzed and compared the information of 74 whole genomes of *Acinetobacter baumannii* proceeding from 14 Colombian states during 2012-2015, in which we established molecular epidemiology strategies that could contribute to the strengthening of the active surveillance system of HAI caused by this species. We performed the evaluation of the phenotypical resistance (Kirby Bauer and automatized microbiological systems) and whole genomes were sequenced (Illumina HiSeq 2000), assembled and annotated. Hereafter, we performed molecular typing using multilocus sequence type analysis (MLST 1.8) and pan-genome analysis was done using Roary. The 74 isolations were grouped in to 9 different sequence types (ST), in which ST-79 (55%) and ST-25 (15%) were predominant clones. In these genomes, a total of 37 genes multidrug-resistant associated were identified using a workflow developed by our research group (these include, P_{fam}, Res_{fam} and CARD, 65% were genes related to enzymatic resistant mechanisms, extended-spectrum β -lactamases (31.7%, 13.9%, 17.8%, 23.8%, for *bla*OXA23, *bla*OXA64, *bla*OXA65, *bla*TEM-1, respectively) and aminoglycosides (29.2%, 33.4%, 28.1% for *strA*, *strB* and *aac*(3)-IIa, respectively) and 35% were non-enzymatic mechanisms (30%, 19.3% and 21.4%, for *AdeIJK*, *AbeS* and *Mex* efflux pumps). Finally, we analyzed the variations in behavior of the resistant genomic profile which we correlated with epidemiological data.

Biography

Veronica Del Pilar Rincon Forero is a researcher at the National University of Colombia. She has finished her PhD from the Autonomous University of Madrid in 2012.

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