DNASE ACTIVITY AND HEMAGGLUTINING PROPERTY OF *Corynebacterium* spp.

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Corynebacterium diphtheriae is the causative agent of diphtheria, a toxemic disease that is still a leading cause of morbidity and mortality worldwide. Non-diphtheria corynebacteria have been cited with an increased frequency as pathogens of nosocomial infections. The deoxyribonuclease (DNase) test has traditionally been used as a supplemental test to identify pathogenic microorganisms. Moreover, contribution of DNase production to the bacterial virulence was shown in some studies. The ability of bacteria to attach to animal cells is usually assessed by hemagglutination (HA). The aim of the present report was to assess the DNase activity and HA property of *Corynebacterium* spp isolated in Maranhão, Brazil. For the DNase activity test, three strains of *Corynebacterium pseudodiphtheriticum*, three of *Corynebacterium striatum* and two of *Corynebacterium amycolatum* were investigated. All strains were isolated from the clinical specimen cultures routinely submitted to the Cedro Laboratory, MA. Plate sets with the DNase test media were inoculated by spotting a loopful of bacterial growth on the medium surface and incubated aerobically at 37^{o}C. DNase test medium was flooded with 1 mol l^{-1} hydrochloric acid to visualize clear zones around DNase producer colonies following both 24 and 48 h incubation periods. In the HA assays, six non-sucrose fermenting strains of *C. diphtheriae* isolated from the nasopharynx and throat of the individuals at the Central Laboratory of Public Health from the state of Maranhão, Brazil were examined. The HA for human erythrocytes (0,5%) was determined by the microtechnique. Bacterial suspensions were prepared in PBS (turbidity equivalent to 0.9 absorbance at 580 nm). The DNase activity was detected in all strains tested regardless of the isolation site. The samples of *C. amycolatum* only were positive for the test after 48 hours of incubation, as well as one of the isolates of *C. striatum*. According to the literature, hemagglutinins are expressed predominantly in the non-sucrose fermentation biotype. All strains of *C. diphtheriae* in the present study are non-sucrose fermentation. Two strains of *C. diphtheriae* did not exhibit HA ability, including the single strain non-toxigenic analyzed. Some strains presented stronger HA (8 and 16 titers).We cannot exclude the possibility of involvement of other different surface antigens in the *C. diphtheriae* adherence mechanism eventually not detected by human erythrocyte receptors.

Keywords: *Corynebacterium* spp, DNase activity, hemagglutination