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ePoster Viewing
Laboratory automation

R-medium to culture and antibiotics susceptibility testing of fastidious and anaerobic bacteria

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Background: Recently, we developed a new versatile agar medium supplemented with antioxidants allowing the aerobic culture of 623 bacterial strains from 276 species including 82 strict anaerobes and fastidious bacteria including *Francisella*, *Legionella* and *Campylobacter*.

Material/methods: Here, we tested the sensitivity of the R-medium manufactured by Culture-TOP a new start up, for cultivating microorganisms present in low concentrations between 10-100 CFU/mL. We therefore tested the growth of ATCC strains of *Staphylococcus aureus*, *Bacillus subtilis* and *Pseudomonas aeruginosa* with inoculums calibrated at 10-100 CFU/mL using R-medium and we have compared our results to those obtained using the reference culture medium Columbia agar with 5% sheep blood (COS). The R-medium was also used to isolate bacteria from 8 stool samples and the results were compared to those obtained using COS incubated in both aerobic and anaerobic atmosphere. Finally, we determined R-medium's ability to achieve the antibiotic susceptibility testing of 7 aerobic and 8 anaerobic bacteria and we compared our results with those obtained using the reference medium Mueller Hinton agar with 5% sheep blood (MH).

Results: The growth of ATCC strains of *S. aureus*, *B. subtilis* and *P. aeruginosa* calibrated at 10-100 CFU/mL using R-medium was similar to that obtained using COS in terms of growth time and number of growing colonies. Regarding culture and isolation tests, preliminary results showed that culture of the 8 stool samples allowed the isolation of 25 anaerobic bacteria species from 14 different genera using R-medium against 49 anaerobic bacteria species from 19 different genera using COS incubated anaerobically, and 41 aerobic bacteria species using R-medium against 42 using COS incubated aerobically. At the genus level, these preliminary results show that R-medium performances are comparable to those obtained using COS incubated in aerobic or anaerobic atmosphere, without using anaerobic jars or gas pack anaerobic generator because the R-medium is incubated only in aerobic atmosphere. Finally, R-medium was able to give high quality antibiograms comparable to those obtained using the MH medium in terms of inhibition diameter and minimum inhibitory concentration (MIC) but also in terms of legibility on the scanner measuring the inhibition diameters.

Conclusions: Based on the results described above, we can confirm not only the versatility of the R-medium for bacterial culture, but also its use in the hospital diagnosis and in particular for producing high quality antibiograms and determine MICs.