Evaluation of an automated culture system for microbial growth

Hyeran Sung, Il Hoi Kim, Chong-Kil Lee, and Sukgil Song*

College of Pharmacy, Chungbuk National University, 12 Gaeshindong, Cheongju, Chungbuk, Republic of Korea

The efficiency of isolation and identification of microorganisms have been mainly dependent on development of modern technology including automated culture systems, pursuing reduction of the time to detection and experimental errors in diagnosis of infecting agents. BacT/Alert system is equipped with a sensing module to CO_2 produced by the growing microorganisms to detect the growth of living organisms. In order to evaluate the efficiency of the detection system, several parameters for microbial growth were determined using 6 bacteria. In BacT/Alert 3D automated culture system with standard aerobic(SA) and anaerobic(SN) media bottles, both 3 of aerobic bacteria (*P. aeruginosa, M. luteus, B. subtilis*) and one of facultative bacterium *S. aureus* were detected up to 1 CFU within 31.44 hours. In addition, one of anaerobic bacterium *C. sporogenes* was detected up to 1 CFU within 15.96 hours. *P. acnes* was detected up to 10,000 CFU in 129.36 hours. Compared with conventional culture method, BacT/Alert 3D automated culture system was more efficiently detected microorganisms by about $10-10^5$ and saved detection time up to 2-10 hours. Therefore, this automated culture system enables to efficiently detect bacteria from clinical samples and biologics without handling errors.