World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:11, No:02, 2017

Sensitivity, Specificity and Efficiency Real-Time PCR Using SYBR Green Method to Determine Porcine and Bovine DNA Using Specific Primer Cytochrome B Gene

Authors : Ahlam Inayatullah Badrul Munir, M. Husaini A. Rahman, Mohd Sukri Hassan

Abstract : Real-time PCR is a molecular biology technique that is currently being widely used for halal services to differentiating between porcine and bovine DNA. The useful of technique become very important for student or workers (who works in the laboratory) to learn how the technique could be run smoothly without fail. Same concept with conventional PCR, real-time PCR also needed DNA template, primer, enzyme polymerase, dNTP, and buffer. The difference is in real-time PCR, have additional component namely fluorescent dye. The most common use of fluorescent dye in real-time PCR is SYBR green. The purpose of this study was to find out how sensitive, specific and efficient real-time PCR technique was combined with SYBR green method and specific primers of CYT b. The results showed that real-time PCR technique using SYBR Green, capable of detecting porcine and bovine DNA concentrations up to 0.0001 µl/ng. The level of efficiency for both types of DNA was 91% (90-110). Not only that in specific primer CYT b bovine primer could detect only bovine DNA, and porcine primer could detect only porcine primer. So, from the study could be concluded that real-time PCR technique that was combined with specific primer CYT b and SYBR green method, was sensitive, specific and efficient to detect porcine and bovine DNA.

Keywords : sensitivity, specificity, efficiency, real-time PCR, SYBR green, Cytochrome b, porcine DNA, bovine DNA
Conference Title : ICBAE 2017 : International Conference on Biotechnology and Agricultural Engineering
Conference Location : Kuala Lumpur, Malaysia
Conference Dates : February 12-13, 2017