

The aim of this study was to transfer plasmids DNA into *E. coli* induced by low energy ion beam. Seven plasmids named pUC19 (2.7 kb), pGEM-2 (2.8 kb), pGEM[®]-T Easy (3.0 kb), pGFP (3.3 kb), pJC3 (4.2 kb), pBI121 (13.0 kb) and pKIWI105 (21.0 kb) were chosen to transfer (separately) into the bombarded bacteria. Argon and nitrogen ions were used to bombard the bacteria with energy of 25 , 26 and 31 keV, and in range of $0.5 - 4 \times 10^{15}$ ions/cm² fluences. And incubation time was 2 - 30 minutes in range. The successful of transferring plasmids was considered by resistance of transformed bacteria to antibiotic , expression of *lacZ* and *GFP* genes in the transformed bacteria , molecular size of the transformed plasmids and PCR analysis . Our results indicated that Ar-ion at 25 and 26 keV with fluences of 1×10^{15} and 2×10^{15} ions/cm² could transfer pUC19 , pGEM-2 , pGEM[®]-T Easy and pGFP into *E. coli*. In this study, maximum size of the plasmid being transferred into *E. coli* is pGFP with 3.3 kb. Consideration for incubation time, the bombarded bacteria at fluence of 2×10^{15} ions/cm² spent less incubation time than the bombarded bacteria at 1×10^{15} ions/cm² for pUC19 transfer. Bombardment of bacteria with Ar-ion at 31 keV and N-ion at 26 keV in all fluences were not successful for the plasmids transferring. In addition at minimal amount

of 50 ng of pUC19, pGEM-2 and pGFP were able to transfer into bombarded bacteria at incubation time of 2, 5 and 2 minutes respectively.