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Optimization of polymerase chain reaction

Shafeeq Ahmed Mohammed
University of Skovde, Sweden

Polymerase Chain Reaction (PCR) is a vital technique in Molecular Biology, by the invention of Polymerase chain reaction there is a lot of development occurred in science. PCR is invented by Kary Mullis in 1983. By this technique a specific fragment of DNA is amplified into many copies of DNA, so Polymerase Chain Reaction depends on thermal cycling, it has repeating cycles of heating and cooling. In each cycle the quantity of DNA is doubled. In each cycle it has following functions like denaturation of DNA, then annealing of primers to template DNA, and extension of DNA by Taq polymerase by adding dNTPs. Magnesium ions help Taq polymerase for adding dNTPs to the DNA template. Optimization of PCR is performed by changing the concentrations of reagents and checking at what concentration getting good intensity bands. By this technique RNA is also amplified, but before going amplification it has to be converted into cDNA by reverse transcriptase, they are enormous applications of PCR like in pre - natal diagnosis samples were taken from fetal tissue to amplified, in DNA profiling, gene manipulation, apart from molecular biology it also has applications in palaeontology and archaeology. In this experiment the good intensity bands were formed at following concentrations that is for Magnesium chloride at1mM concentration, for Polymerase at1U/20µl concentration, the optimum amount of template is 50 ng/20µl,and optimum annealing temperature is 650 C.

Biography

Shafeeq Ahmed Mohammed has finished his Masters in Biotechnology in Bangalore University and also Masters in Molecular Biology in University of Skovde, and did many projects under Molecular department is Skovde University.

mshafeeqahmed88@gmail.com