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Digital microfluidics (DM) is an advanced technology in microfluidics where electrowetting force is used to control and manipulate nanolitre and microliter-sized droplets on a set of electrodes.[1] DM has gained considerable attention because of fast heat transfer, less reagent volume due to miniaturization of reaction, small footprints and incredible control of droplets. This technique minimizes the analysis time and efforts and offers innovative prospects for process automation and integration in a unique setup. It is very favorable for high throughput applications. The movement of droplets using DM requires a hydrophobic surface on which the processes can be performed easily. SLIPS (Slippery liquid infused porous surface) have been demonstrated to be used as a surface for digital microfluidics because of antifouling properties and fine movement of droplets.[2] SLIPS is fabricated by utilizing porous polymeric substrate infused with the slippery fluid.

PCR product purification is important step in molecular cloning. The purification is done to remove the enzymes, primers, salts and other non-reacted components from the reaction to get pure amplified band.[3] The purity of PCR product is crucial for the gene sequencing, aptamer sequencing and cloning. In addition to this, whole genome sequencing techniques have increased the need for the purity of the nucleic acids used. Purification of DNA using commercially available kits is cumbersome, time-consuming and generates a lot of plastic waste. With digital microfluidics, the high throughput purification of nucleic acids can be achieved. The DM platform used in this study is developed in-house.[4] Magnetic nanoparticles have been employed for the purification of PCR product on the DM platform as they have tendency to bind to the DNA. The binding of the DNA to the nanoparticles can be tuned by altering the ratio of DNA and nanoparticles. A pure DNA band, free of primers is obtained on agarose gel after purification via DM.

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