□

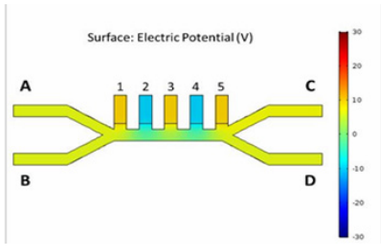
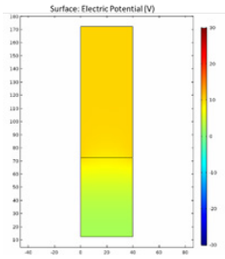
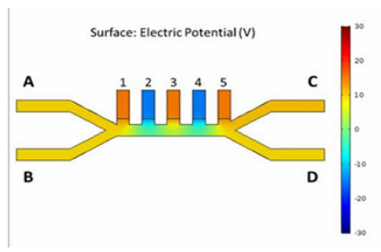
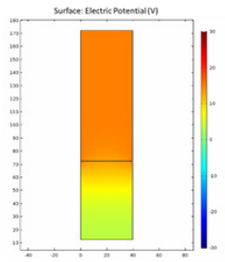
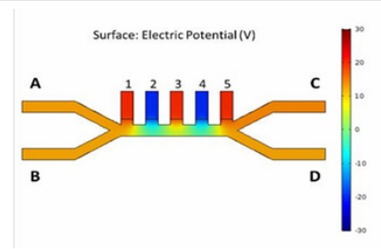
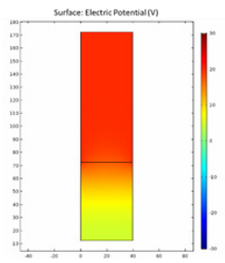
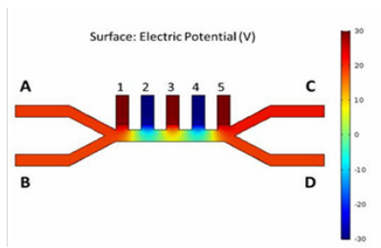
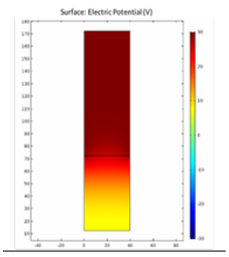
Parameter	Front view	Cross-sectional view
(a) electrode 1,3,5 = 10 V, 2,4 = -10V		
(b) electrode 1,3,5 = 15 V, 2,4 = -15V		
(c) electrode 1,3,5 = 20 V, 2,4 = -20V		
(d) electrode 1,3,5 = 30 V, 2,4 = -30V		

FIGURE 5. An electrical field distribution inside the microchannel at various voltage that charges at the 5 electrodes; V=-30V to 30V

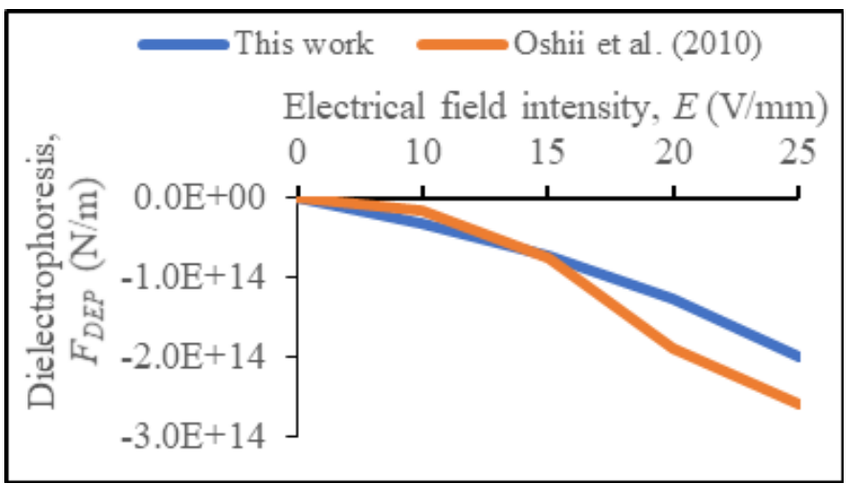


FIGURE 6. Comparison result on the effect of the electric field intensity, *E* on the DEP force

decreased gradually, however as the *E* is increasing, the DEP force shown sudden declined due to the square factor in the Eq. (1).

CONCLUSION

The H-type microchannel was developed to observe the effects of inlet velocity, blood cell concentration and voltage charged on the blood cell distribution. The results show the optimum concentration of the blood cells for better mixing process was achieved at C_A =0.01 mol/m^3 and v_B=800 μm/s as the lower concentration tend to reduce any mixing between a medium and the blood cell. The optimum voltage for platelet cell separation was achieved at V=10V as it shows the highest DEP force, F_{DEP}=-3.19×10^{13} N/m as compared to the others.

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DECLARATION OF COMPETING INTEREST

None.

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