

CHAPTER V



CONCLUSION

The effect of solvent strength on the chromatographic behavior in terms of the number of theoretical plates, peak profile and retention time of paracetamol, phenol, methylparaben, ethylparaben and propylparaben on RP-8 and RP-18 column can conclude as follows:

1. The highest column efficiency will be obtained when the solvent strength of sample solutions is equal or less than that of mobile phase in both columns.
2. Effect of solvent strength of each studied compound on RP-8 and RP-18 will increase when column temperature increases.
3. The solvent strength will significantly affect on the compound which less retained on column.
4. Each studied compound on RP-18 column will be affected by the solvent strength more than that on RP-8 column.
5. The effect of solvent strength on peak profile characteristics can be described by proposed model based on diffusion principle of sample zone.
6. The retention time of each studied compound was not affected by the solvent strength at the same temperature.

7. The correlation between the number of theoretical plates and polarity index and the correlation between the number of theoretical plates and viscosity values of sample solution are a second-degree polynomial function i.e., $N = A_0 + A_1P_1 + A_2P_1^2$ and $N = B_0 + B_1n + B_2n^2$, respectively, where A_0, A_1, A_2, B_0, B_1 and B_2 are fitting parameter as shown in Table 4.1 to 4.10.

For the future work, the correlation between the fitting parameter and physicochemical properties of each studied compound should be studied. Consequently, there may be the general equation which can calculate the number of theoretical plates in proximity.