Determination of Optimum Separation Condition of Catechin Compounds by Retention Theory in HPLC

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An efficient optimization method was suggested to separate catechin compounds by RP−HPLC. In this work, the binary mobile phase of water and acetonitrile was used with the buffer of acetic acid (AA). The elution profiles were calculated by the plate theory based on the linear and quadratic equations of retention factor, $\ln k = \ln k_w + SF$, $\ln k = L + MF + NF2$, $k = A + B/F$, and F was the vol.% of acetonitrile. We modified the plate theory to calculate elution profile in both isocratic and gradient mode. From the final calculated results, the first mobile phase composition was water in 0.1% AA/acetonitrile in 0.1% AA, 90/10 vol.%, then after 30 min, the second composition of mobile phase was linearly changed to 70/30 vol.%, and finally after 10 min, it was kept at the isocratic mode. In the experimental conditions, the agreement between the experimental data and the calculated values was relatively good.