CHAPTER V

CONCLUSION

The stability enhancement of novel capsinoid analogues was achieved by inversion of ester bond position and the degradation of capsinoids through *p*-quinone methide pathway was inhibited. The synthesis of capsinoid analogues (**4-7**) were simply prepared by esterification between homovanillic acid (**14**) as an aromatic residue with *(E/Z)*-7-methyl-5-octenol (**12** and **13**), *(E)*-8-methyl-6-nonenol (**17**) and 8-methylnonanol (**18**) as lipophilic region, respectively to yield capsinoid analogue **4** and **5** in 62% and capsinoid analogue **6** and **7** in 77% yields, respectively.

The stability of capsinoid analogues (**4-7**) in polar protic solvent (CH_3OH:H_2O/80:20 v/v with 0.025% AcOH) were investigated by HPLC technique. It was found that capsinoid analogues (**4-7**) were stable over 24 hours indicated that inversion of ester bond position was contributed to their stability. On the other hand, *E/Z-* capsiate (**1**) gradually decreased to 85.70% and 58.90%, respectively. Moreover, capsinoid analogues (**4-7**) did not show any cytotoxicity in the range of 0.1-200 μM *via* MTT assay in Caco-2 cell.

In conclusion, this is the first report to reveal that without any protecting OH group of aromatic residue in capsinoid anlogues, in which important for their biological activity, can be achieved *via* simple inversion of ester linkage. With the enhanced stability profile as well as non-cytotoxicity information, the design of novel capsinoid analogues might be useful for producing the stable substances using for several applications in future.