Synthesizing derivatives from cyclopentanone analogue curcumin and their toxic, antioxidant and anti-inflammatory activities

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ABSTRACT
Three types of cyclopentanone derivatives have been synthesized from aromatic aldehyde and ketone derivatives under
a base condition through aldol condensation. These cyclopentanone products were 2,5-dibenzylidene-cyclopentanone (a), 2,5-bis-(4-hydroxy-benzylidene)-cyclopentanone (b),
and 2,5-bis-(4-hydroxy-benzylidene)-cyclopentanone (c)
which has a yield of 63-99%. The chemical structure of these compounds were determined using UV, IR and NMR
spectroscopy. In order to clarify the role of hydroxyl and amine moieties, toxic, antioxidant and anti-inflammatory
activities were carried out. The toxic test indicated that the
compounds showed strong toxicity. In addition, the presence
of hydroxyl and amine groups on both rings of curcumin in
creased the antioxidant and anti-inflammatory activities.