7. SUMMARY AND CONCLUSION

3-Hydroxymethylchromones have been found to undergo a novel transformation in the presence of Cs$_2$CO$_3$ in toluene to afford a trimeric chromone, viz., 3,3-bis-(4-chromone-3-ylmethyl)-chroman-4-ones. A plausible mechanism for the formation of trimeric molecule has been proposed on the basis of NMR, HPLC and experimental data. The structure of the trimer has also been confirmed by single crystal X-ray diffraction study.

Chromone-3-ylmethyl aryl ethers undergo a novel domino [1,3]-[1,3]-rearrangement to give 4'-hydroxyhomoisoflavones under thermal conditions, while the para-substituted ethers lead to 2'-hydroxyhomoisoflavones involving an O- to C-[1,3]-migration, instead of the expected Claisen rearrangement. Under TFA condition, chromone-3-ylmethyl aryl ethers have been found to undergo a facile ortho selective [1,3]-migration at the aryl moiety to give 2'-hydroxyhomoisoflavones. It has also been established that the mechanism of this TFA catalyzed transformation involves a concerted pathway. This methodology offers a novel method for accessing 2'-hydroxyhomoisoflavones which are precursors for homopterocarpanes.

 cis-Homopterocarpanes have been synthesized in two steps from the products of TFA catalysed [1,3]-rearrangement of chromone-3ylmethyl aryl ethers. A new class of trans-homopterocarpanes were successfully synthesized and characterized thoroughly.