Introduction

- In 1979, Levine and co-workers isolated and identified bioactive diterpenoid ‘zoapatanol’ from the zoapatle plant, *Montanoa Tomentosa* [1].
- Prepared in the form of tea and is used by Mexican women for several *gynaecological/obstetrical applications* [2].
- Extracts of zoapatle was tested in human and animal subjects, thereby prompting an extensive research [2].
- Biological applications evoked interest in the compound. The structure of zoapatanol spurred synthetic attempts to access them for further biological assessment [2].

Key Structural features

- Oxepane ring
- Side chain
- Double bond configuration

Molecular formula: C_{20}H_{34}O_{4}

Aim

- Develop and optimise methods for the total synthesis of zoapatanol
- Application of Tsuji-Trost reaction methodology as a part of the total synthesis of zoapatanol
- Attachment of the side chain to the oxepane ring

Lactone Formation

1) allylMgBr 62%
2) TBSi, imidazole 98%

OH-Insertion Strategy

allyl dichloroacetate, LDA 67%

Conclusion and Future Work

Conditions have been developed for lactone formation. OH-insertion strategy was explored as part of the synthetic efforts. The key Tsuji-Trost Allylation methodology occurred smoothly in an excellent yield. The target is to build methodology towards the total synthesis of zoapatanol whilst ensuring an efficient and inexpensive approach.

Further biological testing of zoapatanol can be carried out once synthesis has been achieved.

References & Acknowledgements