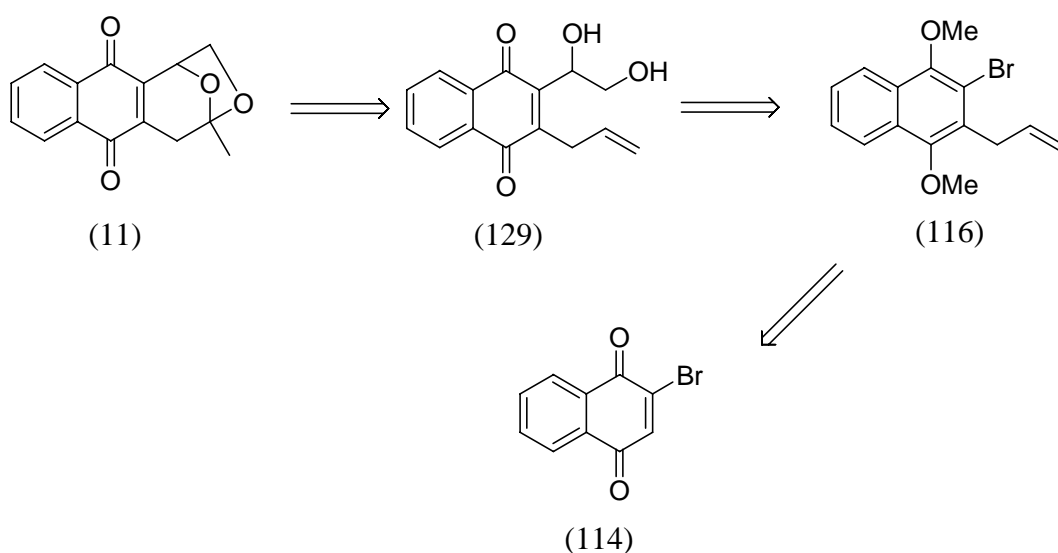


## DISCUSSION

### Isagarin

*Pentas longiflora* Oliv. (Rubiaceae) is woody herb which is reputed to possess medicinal properties. In Rwanda, where it is known as the traditional medicine under the name “Isagara”, the powdered roots of *P. longiflora* are used to treat the skin disease *Pityriasis versicolor*. The tetracyclic naphthoquinone isagarin (11), 1,4-epoxy-4-methyl-1,2,4,5-tetrahydronaphtho [2,3-d]oxepin-6,11-dione was isolated from the roots of *P. longiflora* and subsequently synthesized by Kimpe *et al.* in 1999. We have shown that bicyclic ketals of this type can be obtained by palladium catalysed cyclization of the corresponding diol onto a proximal terminal alkene. Our new synthetic approach of isagarin (11) involving the Wacker (PdCl<sub>2</sub>, CuCl<sub>2</sub>, O<sub>2</sub>) cyclization of (129) to (11), was demonstrated by the retrosynthetic sequence outlined in Scheme 17.



**Scheme 17**