

**Production of Zerumbone from *In Vitro* and *In Vivo* Source Material
of *Zingiber zerumbet* Smith.**

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ABSTRACT

Zerumbone is a major sesquiterpenoid found in the essential oil of *Zingiber zerumbet* Smith (locally known as lempoyang). This compound which has high pharmaceutical and cosmeceutical values which can be extracted from the rhizome of *Z. zerumbet* by hydrodistillation. However, the amount of zerumbone that can be extracted from the cultivated rhizome is subjected to the risk of pest infection, which can affect the rhizome development. Tissue culture techniques were found to be the best solution to provide a pest-free starting material for this plant. Active shoot buds were cultured in MS basal medium, transferred into MS supplemented with BAP after 4 weeks. These shoots were then transferred to MS medium supplemented with BAP and shoots were then rooted on solidified MS basal medium. Mature rhizomes were harvested after ten (10) months transplantation. Callus was induced on MS basal medium supplemented with phytohormone under dark condition. After 4-8 weeks, callus was transferred to M2D medium. Cultivated rhizomes, tissue culture derived rhizomes and embryogenic cells of *Z. zerumbet* were extracted for zerumbone content. Except for the embryogenic cells, the results revealed that the amount of zerumbone in the materials tested were comparable.

Keywords: tissue culture, cell suspension, zerumbone, *Zingiber zerumbet*.