

## **RNA from fresh frozen cryosections of oil palm inflorescences is superior to FFPE sections**

### **ABSTRACT**

Formalin-fixed, paraffin-embedded (FFPE) and fresh frozen (FF) tissue sections are valuable sources for histology and molecular studies. However, FFPE tissue sections usually provide poor quality RNA that is unsuitable for most downstream molecular applications. In this study, tissue preparation for cryosectioning and RNA extraction protocols were optimised for FF oil palm inflorescences. FF tissue treated with sucrose offered good cellular image resolution and more importantly, good RNA quality. Higher RNA quality with good RIN values (>6) was obtained from FF sections compared to the fragmented RNA from FFPE tissue sections. However, FFPE sections provided better resolution in terms of cellular morphology. The quality of cellular morphology of the FF sections was moderate, but was sufficient to distinguish the different cell types. Hence, FF oil palm inflorescences is a better choice for downstream transcriptomics studies that require tissue sections without compromising the cytological details.

**Keyword:** Fresh frozen tissue sections; Sucrose; Microscopy; Cytological studies; FFPE