FOCUS ON:

STAGES IN OIL PALM TISSUE CULTURE

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Cloning through vegetative propagation is an attractive alternative to obtain offspring which possess the genetic make-up of the parents. In oil palm due to its morphology, tissue culture is the only option for vegetative propagation. Clonal material results in uniform growth and yield performance thus increase in yield per unit hectare. The parent plant, known as ortet is normally selected from high performing individuals with traits as per Table 1. In the selection of clones for production their amenability to tissue culture and their prolificness in shoot production are additional selection criteria.

In the cloning of oil palm through tissue culture, the method utilised entails the formation of callus on leaf explants which later develops into embryoids. Shoots emerge from these embryoids and were later root resulting in complete plants called ramets. These ramets are established in soil potting media and acclimatised to the external environment. The hardened ramets will be placed under normal nursery conditions prior to establishment in the field.

Traits	Description	Value
Fresh Fruit Bunch (FFB)	Weight of the fruit bunch collected for 12 months	≥200kg/palm/year
Oil to Bunch ratio (O/B)	The ratio of oil extracted from a known weight fruit bunch	≥30%

Tissue Culture of Oil Palm

Samples collected from selected superior palm ▶ Leaf explants sterilized and excised from the cabbage ▶ Leaf explants dissected into smaller parts ▶ Callus stage ▶ Polyembryoide stage ▶ Multiplication of shoots ▶ Rooting of shoots ▶ Acclimatization stage ▶ Pre-nursery stage ▶ Estate nursery stage ▶ Field establishment

Figure 1: Schematic presentation of the stages in oil palm tissue culture

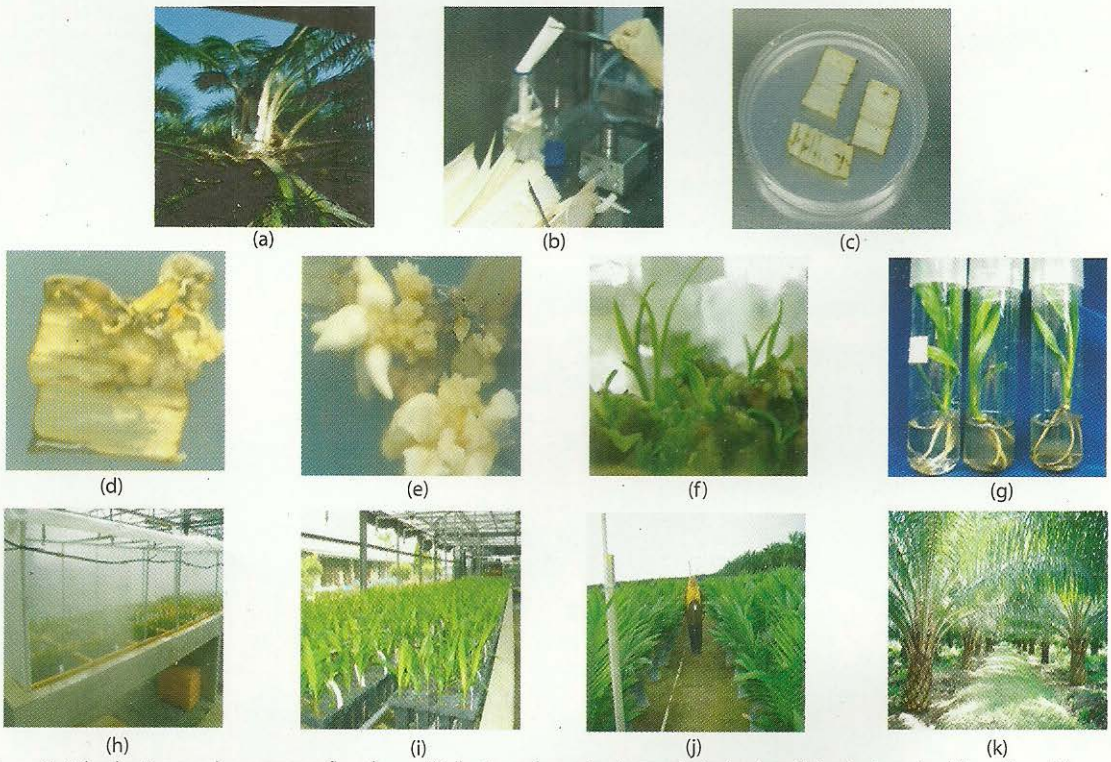

Figure 2: Oil palm tissue culture process flow from: a)Collection of samples from selected palms; b) Explants excised from the cabbage; c) Leaf explants 1cm x 2 cm sizes placed on Petri dishes containing appropriate media d) Callus formation of leaf explants; e)Embryoid developed from callus; f) Cluster of shoots g) Rooting of shoots h) Acclimatisation of ramets; i) Acclimatised ramets at pre-nursery; j) Ramets at the estate nursery k) Field planted ramets.