

Thesis Title Factors Influencing Proliferation and Quality
of Shootlets of Paper Mulberry (Broussonetia
papyrifera Vent.) Grown in vitro

Author Miss Rungsima Ampawan

M.S. Agriculture (Horticulture)

Examining Committee

Assist. Prof. Dr.Pimchai Apavatjirut Chairman

Assist. Prof. Dr.Pisit Voraurai Member

Assoc. Prof. Dr.Tragool Tunsuwan Member

Assoc. Prof. Kesinee Ramingwong Member

Abstract

The studies to increase number and quality of paper mulberry (Broussonetia papyrifera Vent.) in vitro showed that shootlets grown on T17 solid medium containing BAP 1 mg/l, IBA 0.3 mg/l, agar 8 g/l supplemented with 2 mg/l riboflavin yielded high percentage of normal shootlets i.e. 90 %. Kinetin at 1-2 mg/l+IBA 0.3 mg/l used alternately with BAP 1 mg/l + IBA 0.3 mg/l increased shootlet length. Riboflavin tended to intensify the leaf color.Increasing the agar from 8 to 12 g/l decreased vitrification but also decreased shootlet quantity from 5.2 to 3.5/culture. Increasing concentration of BAP helped to increase shootlets but also increase vitrification. When BAP was employed with IBA, the adversed effect on shootlet and leaf was more pronounced than

when kinetin was used with IBA. The detrimental effect was shown on high percentage of leaf abscission. Kinetin did not help to increase shootlet number, but it promoted shootlet height and root formation from the shootlets.

The paper mulberry clones, culture container and container covers had the effect on growth and quality of shootlets. Types of containers and their covers had the influence on gaseous exchange and water evaporation. The head space of the containers was also related with culture volume and the shootlet number cultured. These factors resulted in the concentration and gaseous mixture ratio in the head space.

Histological study on the leaf structure found that it was best when BAP + IBA at 0.3 and 0.3 mg/l were used. When BAP or kinetin concentration was increased, more air spaces were found and the cells showed more unorganization.