

國立嘉義大學九十六學年度
園藝學系碩士班招生考試試題

科目：專業英文

1. 試將下列一段英文摘要之大意以中文寫出：(25分)

Methyl bromide fumigation is the most common treatment applied to fresh commodities to meet quarantine security. Under the Montreal Protocol of the United Nations, methyl bromide was phased out in 2005 in developed countries and will be phased out in 2015 in developing countries. While there is currently an exemption for pre-shipment and quarantine use, this use will be highly regulated, and the cost of methyl bromide is expected to increase while the availability decreases; therefore, the need to develop alternative treatments remains. To meet this need, researchers have been investigating many potential alternatives. The use of heat has been expanded to include high temperature controlled atmosphere treatments. These heat treatments, both with and without controlled atmosphere, are being explored for tropical, subtropical, and temperate commodities. Radio frequency treatments present a faster option for heating many commodities. Controlled atmosphere treatments at ambient and low temperatures are also being explored. Irradiation treatments have received considerable attention, with support from federal and state governments in the U. S., and new facilities are under construction in Brazil. There has been increased interest in the use of e-beam or e-beam/x-ray in place of source irradiators. Use of irradiation for quarantine treatment within U. S. markets will likely increase; however, approval from trading partners may limit its use. Generally recognized as safe (GRAS) fumigants are being explored for their potential use in insect quarantine. Use of non-host status and pest-free zones should be more common in the future. However, despite considerable research activity, only a few new quarantine treatments have been approved as alternatives to methyl bromide.

2. Distinguish between sexual and vegetative reproduction and state the main advantage of each in plant breeding. (以英文作答) (25分)

3. 請將下列英文[1-5]依序翻譯成通順之中文：(25分)

[1] Germination, the first step in the growth of the embryo, begins with the uptake or imbibition, of water. [2] This is a critical step because seeds are quite dry, containing only 5% to 10% water. [3] The cells of dry seeds are tightly packed with stored proteins, starch, and lipids. This stored food is packaged into cytoplasmic organelles called protein bodies, lipid bodies, and amyloplasts, which store starch. [4] After imbibition, enzymes are activated and rapidly released to digest the stored food into smaller molecules that can then be transported and converted into energy needed for growth. [5] Consequently, the cells of imbibed embryo contain fewer storage organelles and more mitochondria, ribosomes, and endoplasmic reticulum, which are organelles involved in metabolism.

4. 試將下列摘要[1-5]依序翻成中文：(25分)

Abstract:

[1] *In vitro* shoots of *Spathiphyllum* (3-4cm) were cultured for 12 weeks on Murashige and Skoog (MS) media containing different concentrations of GA₃ (0-10 mg/L). [2] Flowering induction was highly related to GA₃ concentrations in the culture media. In solid culture, the first flowering was observed after 56 days of culture and the highest frequency of flowering (83%) was obtained at 10.0 mg/L GA₃. Plantlets flowered in bioreactor reached 100% flowering after 9 weeks of culture and the inflorescence emergence was advanced by 9 days compare to solid culture. [3] Different sucrose concentrations (0-12%) were used to investigate the role of sucrose as a carbon source. In solid culture, sucrose was indispensable for *in vitro* flowering. 6% of sucrose was optimal for floral formation while high sucrose levels at 9% and 12% exhibited inhibitory effects. In bioreactor culture, plantlets were able to flower in the absence of sucrose. [4] The first flowering was observed after 42 days of culture in bioreactor at 6% of sucrose. The activities of photosynthetic enzymes during transition to reproductive phase were investigated. Rubisco activity declined after floral induction while PEPcase was highly active. [5] The change in sugar content in the leaves was quantified using HPLC. Sucrose accumulation in the leaves significantly affected inflorescence size and timing of flower induction. (Cite=http://www.actahort.org/books/725/725_9.htm)