

國立嘉義大學 99 學年度  
農業科學博士學位學程招生考試試題

科目：農學專業英文

請將下列短文翻譯成中文

I. (25%)

*Lactobacillus* exists in natural environment and gastrointestinal systems of animals. Because it is well known that it benefits to the host's alimentary tract in many ways, many publications, especially in humans, pigs and chickens, have been published and discussed deeply. However, just a few were reported in geese and ducks. The aim of this study was to select potential probiotics from geese *in vitro*. *Lactobacillus* suspected isolates were tested by pathogen inhibiting tests, using *Salmonella* Typhimurium and *Escherichia coli*, antimicrobial susceptibility tests, using 12 antimicrobial paper disks, acid tolerance test on Lactobacilli MRS Broth with pH 2.0, adhesive ability of epithelial test, using geese crop epithelial cells, bile salt tolerant test, using Lactobacilli MRS Broth with 2% bile salt and molecular biological identification. Only the LAG81 strain passed through all assays and the sequence of its molecular biological features were similar to *Lactobacillus* sp. T059, whose relation was 99%. According to the results, the LAG81 strain isolated from geese ileum was a high potential probiotic for geese.

II. (25%)

Agroforestry combines crops, livestock and trees, which are intentionally designed and managed as a production unit. Crop production can be optimized when crops are combined with trees and shrubs. The benefits include increased crop yields, improved soil and water quality, increased biodiversity, as well as lower greenhouse gas emissions and increased carbon sequestration. In addition, alternate crop uses related to trees and shrubs, including bio-energy, fruits, nuts, horticulture nursery stock, wood fiber and livestock shelter, could diversify farms and enhance their profitability. Biomass from trees can also be used as an alternative fuel (bio-energy). Carbon dioxide emissions from a unit of electricity generated from bio-energy are 10 to 20 times lower than from fossil fuel-based electricity production.

### III.(25%)

Muscle cells form the active contractile tissue of the body known as muscle tissue. Muscle tissue functions to produce force and cause motion, either locomotion or movement within internal organs. Muscle tissue is separated into three distinct categories: visceral or smooth muscle, which is found in the inner linings of organs; skeletal muscle, in which is found attached to bone providing for gross movement; and cardiac muscle which is found in the heart, allowing it to contract and pump blood throughout an organism..

### IV.(25%)

In developing selfed seeds of *C. multiflorus*, the embryo reaches at most the globular stage and never forms mature seeds, while in *C. striatus* a few mature selfed seeds are formed. In both species, the main cause of abortion of developing selfed seeds is diminished endosperm development (low values of the ratio of endosperm to embryo), which triggers collapse of the endosperm and embryo. The results indicate that self-sterility in *C. striatus* is postzygotic because of strong, early inbreeding depression, while in *C. multiflorus* there exists a mixed pre- and postzygotic mechanism; the prezygotic mechanism causes rejection of some self-pollen tubes in the style/ovary, and the early inbreeding depression triggers abortion of fertilized ovules that escaped that action.