

1. 寫出參與 yoghurt 發酵之兩種微生物之學名並說明其彼此間之關係。(10%)
2. 試述 Intermediate-moisture foods (IMF) 之定義及 IMF 食品保存之原理。(10%)
3. 簡述 red grape wine 之(1).製造流程 (2).參與之主要微生物英文學名及其作用。(10%)
4. 解釋下述食品中 coliforms 規範之意義(10%)： $n = 5, c = 1, m = 10, M = 100$ .
5. 比較下列名詞(10%)：(1). Homofermentation vs. heterofermentation (2). Control points vs. Critical control points
6. 請說明下段摘要內容意涵：A rapid and reliable technique for identifying the strains of lactic acid bacteria (LAB) was developed in this study, and the 16S ribosomal RNA gene (16S rRNA gene) was used as the target. Several species-specific primer pairs were designed based on the variability of 16S rRNA sequence(s) for differentiating 5 strains of lactobacilli which were added into probiotic products in Taiwan. It was simple to identify *Lactobacillus acidophilus* and *L. delbrueckii* by species-specific primers, but it could not be used to distinguish *L. casei*, *L. paracasei* and *L. rhamnosus*. Another PCR approach was developed with hybridization probes which were designed according to the difference among the 16S rRNA genes of *L. casei*, *L. paracasei* and *L. rhamnosus*, and melting curve analysis of the hybridization probe was used to distinguish them. It was found that this approach could identify *L. paracasei* and *L. rhamnosus* correctly but not separate *L. paracasei* from *L. casei*, the result was due to both of them had the same 16S rRNA sequence. These results suggest that melting curve analysis of PCR approach in this study is a rapid, simple and accurate method in distinguishing the closely related strains of lactobacilli. (20%)
7. 請描述三種常見的蔬果發酵產品，並敘述其中參與的微生物種類、發酵與作用機制、及可能的腐敗劣變，並從微生物角度提出控制與改善品質的方法。(30%)

試題隨卷繳回