Introducing the牽涉到的結果和討論

**Results and Discussion**

**Vintage Storage**

wines. Hence, our goal is to develop a targeted these compounds due to various climate and soil geographical regions may display intensity differences for grape cultivars. In addition, grapes cultivated in different conditions. Therefore, the profile of these compounds in the quadrupole time-of-flight mass spectrometry (Q- filtration, and statistical analysis. The sets of compounds using find-by-formula algorithm and searched against the sample was filtered and analyzed directly by ultra-high performance liquid chromatography (UHPLC) coupled with (PCDL) related with wine sensory components was created for traceability and anti-counterfeiting purposes. The intensity for most compounds in CS is higher and that in ML is lower. PN has highest intensity for procyanindins, but for rapid and reliable target profiling of wines on both compounds database/library (PCDL) and MPP allows for accurate clustering of wines based on cultivars. The red and blue color represents a higher and a lower content than the mean value in an accurate clustering of the wines based on cultivars. It has promise to be applied for prediction of wines with the same cultivars (eg. CS) but varying in geographical origins were subjected to PCA analysis, and it was found from various cultivars and origins were analyzed, and the acquired data were reconstructed using third-order-factors algorithm by matching with both accurate mass (≤ 5 ppm) and retention times (≤ 15%) against the established wine PCDL. The results were exported as csv files and further imported into the chemometric software, MPP or UPLC. The data were then aligned and annotated across all wine samples, and the resulting compounds were filtered repeatedly by occurrence frequency (≥ 8%) and sample variability (≥ 50% in one group). The resulting differential compounds were subjected to principal component analysis (PCA). The data in Fig 4. PCA analysis of CS wines from different countries (A) and different sub-regions within one country (B). Further applying this model to reference samples not included in model building, an average accuracy of 84% can be achieved (Table 2), suggesting that the model is reasonable for cultivars prediction. Differential Polyphenols among Cultivars. To determine the cultivars and geographical origins, it is possible to apply one group of differential markers to determine the cultivar, no matter which region it comes from, then followed with other sets of differentials to evaluate the primary region (countries) and the sub region where it was produced. A PLSA model has been created, and excellent recognition and prediction abilities have been achieved.

**Conclusions**

- **Table 1**: A model based on partial least square differential analysis (PLSDA) was built using the differential compounds found above for data filtration, which shows excellent recognition ability by cultivar, a total of 15 wine samples (Table 2). Further applying this model to reference samples not included in model building, an average accuracy of 84% can be achieved (Table 2), suggesting that the model is reasonable for cultivars prediction.

- **Table 2**: Validation of model using other reference wines

- **Table 3**: Differential markers to identify wine cultivars (partial)