

### CHAPTER 3

### CONCLUSION

SIA technique for the determinations of ascorbic acid in vitamin C tablet and acetic acid in vinegar have been developed.

The proposed method for determination of ascorbic acid content in vitamin C tablet based on redox reaction of potassium permanganate by ascorbic acid. The color intensity of potassium permanganate was decreased with the increasing of ascorbic acid concentration, and excess of potassium permanganate was monitored by spectrophotometry. It was found to be simple, convenient and reliable. The determination range was up to 1200 mg/L (as shown in the section 2.4.3.6). The precision as %RSD of 1.8% (for 1200 mg/L ascorbic acid; n=11) (as shown in the section 2.4.3.7). The sample throughput obtain was 60 aspiration  $h^{-1}$ . The recovery was 105-108% (as shown in the section 2.4.3.9). The method was applied to determine ascorbic acid in local commercial vitamin C tablet samples.

The proposed SIA method for the determination of acetic acid content in vinegar based on neutralization of sodium hydroxide and acetic acid. By the monitoring excess of sodium hydroxide content, the intensity of phenolphthalein indicator was decreased with increasing acetic acid content. The intensity was detected by spectrophotometer. This method was found to be simple, convenient and reliable. The results showed %RSD of 4.8% (for 4% (w/v) acetic acid; n=11) (as shown in the section 2.5.3.8) and the sample throughput of 60 aspiration  $h^{-1}$ . The results obtained from the SIA method agreed with those from a standard titrimetric method.

The proposed SIA procedure is ideally suitable as a process analyzer for quality controlled in production process. It can be totally computerized controlled therefore the change of many variables does not cause any physical reconfiguration of the flow manifold. In addition the used of reagent consumption is much lower than those of FIA and standard method. This developed method is thus green technology due to dealing with water based solution.