

## **CHAPTER V**

### **CONCLUSION**

In summary, the cashew nut shell extract from cashew nut shell can be used as a marker dye in fuel oil. The marker dyes were synthesized by esterification and coupling reaction with chloroaniline giving a yellow color in diesel fuel oil and gasoline, which is the same color being used in gasoline at the present. These marker dyes at the treat rate of 30 ppm in fuel according to the procedure do not affect the physical properties of fuel oil and also not interrupt diesel fuel color.

The determination of marker dyes has been done by solvent extraction technique, using 10% KOH in methanol as a extraction solvent system at the ratio of fuel oil and solvent of 3:1 and then quantifies by UV/Vis-spectroscopy method for laboratory test. The field testing could be determined by comparison of the color with standard color.

The storage time for ten weeks does not affect stability of marker dyes in fuel oil. This means that the marker dyes, which have been synthesized, are suitable as dye and marker dye in diesel and gasoline.

Suggestion for further studies.

1. Quantitative and quanlitative determination of marker dyes by HPLC technique can be determined better than UV/Vis because the HPLC profile of each or mixed marker dyes should be confirmed type of marker dyes which used in fuel.

2. Other anilines containing electron withdrawing group should be used to get more type of marker dyes. Therefore, marker dyes could be changed to any time. This will be help preventive taxed marker dyes coming into market. Moreover, effective dose and cost could be reduced.