CHAPTER 4

CONCLUSION

Based on the various studies conducted in the present work, the following findings are recorded

- All the essential oils are found to inhibit corrosion. This establishes the fact that all the oils are potential vapour phase corrosion inhibitors

- The efficiency of VCI on mild steel, copper and electronic and electrical components has been determined in field and laboratory environments. The oils provide high inhibition efficiency for mild steel and copper metals as well as electronic and electrical components

- The inhibition efficiency of all the oils increase with increase in concentration of VCI

- The inhibition efficiency of all the oils more in rain water and least in SO$_2$ environment. The order is

  Rain water $>$ NaCl $>$ HCl $>$ Sea water $>$ H$_2$S $>$ SO$_2$

- The efficiency of the various inhibitors is in the following order

  $VZ > OP > JG > JA > OB$
● 4% Concentration of oils in ethanol is found to be optimum for maximum corrosion inhibition efficiency

● All the oils function as mixed type of inhibitors

● The mechanism of inhibition is through adsorption

● The inhibitive action of the oil is due to the synergistic effect of the constituents compounds

● All the oils are resistant to bacterial and fungal infections

● These oils can be used as VCI in marine and tropical climates, industrial areas, power plants and telephone utilities

4.1 SCOPE FOR THE FUTURE WORK

The present work attempts to use the easily available natural products as VCI for corrosion prevention of metals. However, there is wide range of scope for future development. Focuses on some points are highlighted below:

● The study can be extended to other products of natural origin

● The study can be conducted at elevated temperatures

● VZ oil has been established as the most effective one. A detailed investigation of VZ from all aspects can be undertaken. The inhibitor can be tested in actual work spot of manufacturing and storehouse of electronic components and to other types of industrial materials.

● It may be worthwhile to investigate and conduct an end-use study of these oils in harbour area.