

## **CHAPTER V**

### **CONCLUSIONS**

The oxidative kinetics of ranitidine HCl was investigated and can be summarized as follows:

1. The reaction kinetics of ranitidine HCl degradation were assumed to be second order.
2. The acceleration of ranitidine HCl degradation by oxygen was greater than the acceleration by light.
3. The changes in degradation rate constants by the additions of free radical inhibitors: BHT and alpha tocopherol, oxygen scavengers: sodium bisulfite and ascorbic acid, and chelating agents: EDTA and citric acid were not conclusive. The rate constants might be increased or decreased depending on concentration and individual antioxidants added, but independent of the groups studied.
4. The HPLC method modified was appropriate for assay of ranitidine HCl in the solutions without the interference from degradation products, additives used and also their decomposition products.

## **Significance of This Study**

Study of the oxidation of ranitidine HCl solution and elucidation of important factors influencing in this study can be applied for developing the stability of ranitidine HCl solution as follows:

1. Flushing nitrogen gas above and in a ranitidine HCl solution is necessary for retardation of oxidative degradation rate of drug.
2. Suitable concentrations of sodium bisulfite and ascorbic acid can decrease the oxidative degradation of ranitidine HCl.
3. Packaging and storage conditions of a ranitidine HCl solution should be aware.



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