General summary

Nalbuphine, a synthetic opioid analgesic which is chemically derived from the oxymorphone is used for pain relief; nowadays it is addicted by nurses and body builders.

The present study was designed to 1) reveal which of the different toxicological analytical methods is more suitable for the identification of nalbuphine , 2) estimate the postmortem drug concentration in some tissues of rats injected intraperitoneally with two different doses of the drug.

The results obtained can be summarized as follow:

1) Color tests revealed that some chemical reagents are suitable for the identification of nalbuphine (e.g. Marquis Reagent, Frohde's reagent and cobalt nitrate / ammonia).

2) Different coloring reagents were sprayed on the chromatoplates of TLC and the results revealed that iodoplatinate reagent and Dragendorff reagent may be considered specific for the identification of nalbuphine.

3) The chromatographic behavior of the drug on silica gel (GF254) is considered important for its identification. There were different calculated R_F values with different eluents.

4) The UV spectrum of nalbuphine showed absorption band at λ_{max} 248 nm.

5) HPLC chromatograms of nalbuphine demonstrated that retention time (R_t) was 3.33 min.

6) Infrared spectroscopy analysis of nalbuphine demonstrated its characteristic function groups of nalbuphine.

7) The ^{1}H- NMR spectrum of nalbuphine dissolved in chloroform was carried out to confirm the protons present in its structure.

8) The characteristic mass spectrum of the drug was identified and the mass fragments with their assigned structures were defined.

9) The quantitative estimations of the drug in different organs of rats by HPLC were successfully carried out. Calibration curve was plotted using different concentrations of nalbuphine against the area under

Peaks, and consequently the concentration of nalbuphine residue in different tissues and blood were obtained.

10) Nalbuphine distribution of in different organs of rats, as well as their abundance per gram tissue was illustrated. Blood, spleen, hair, brain tissues were found to be the organs of choice for toxicological analysis regardless to the dose level.