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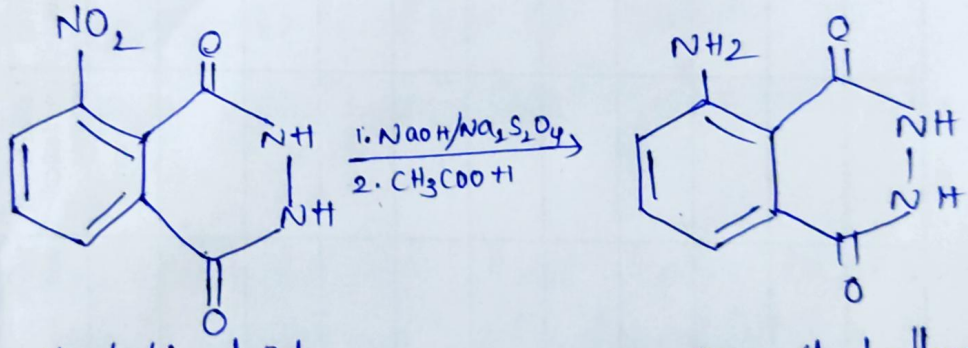
EXPERIMENT-9

Aim: Synthesis of Luminal and its chemilumin Scent reaction with oxidation.

Introduction:-

The phenomenon of emitting light from a material at or below room temperature are known as Luminescence. When chemical reaction Results Luminescence, it is called as chemi Lumin Scence. In these reactions a product forms in its high energy excited state and it relaxes to its ground state with leaf release of energy as light.

Reaction:-



3-Nitropthalylhydride

3-aminopthalylhydride (Luminal)

Procedure:-

Synthesis of Luminal:-

1. Add 70 mg of 3-Nitropthalylhydride to ~1ml of 3M NaOH in a test tube and mix well.
2. Resulting deepbrown red solution add 3mg of Sodium hydrosulphite dehydrate. ($Na_2S_2O_4 \cdot 2H_2O$)

③ To get all the solids down, wash the tube well with the small quantity of water.

④ Remember the total volume of the solution should not be 3 ml.

⑤ Keep the tube in hot bath and heat the mixture for 5 to 10 minutes with occasional stirring.

⑥ Observe the colour change.

⑦ Take a tube out of the bath. and add 10 - 12 drops glacial acetic acid. (not excess)

⑧ Cool it down to room temperature by putting in ice bath.

⑨ collect the solid product by vaccum filtration Note down the colour of solid.

⑩ Take the weight of synthesized luminal.

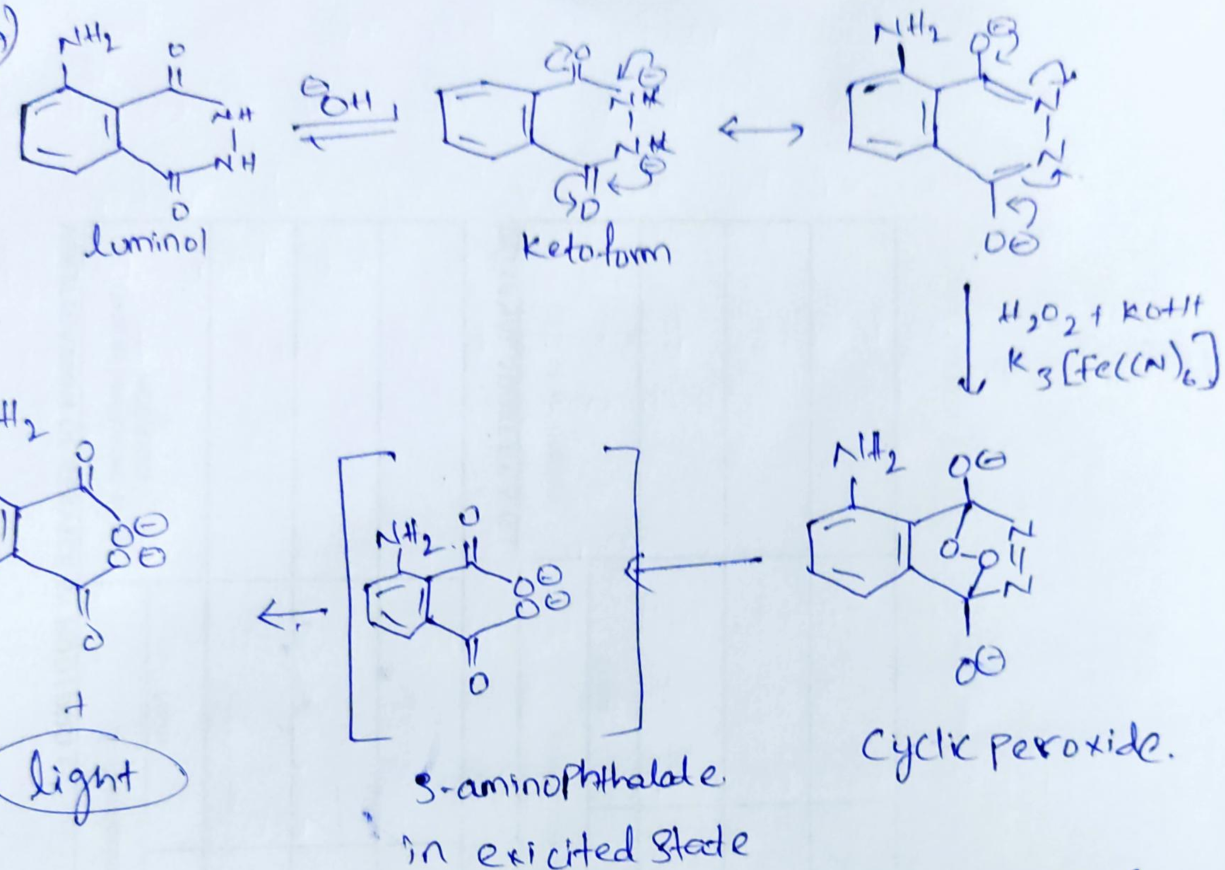
Result:-

chemiluminescence has been observed from the oxidation of luminal.

Answers for the Questions:-

① A) chemiluminescence is the emission of light as the result of chemical reaction. There may also be limited emission of heat.

② A)



③ Sodium hydroxide solution is corrosive and dangerous to eyes. skin burns are possible. As potassium ferrocyanide is a strong base. the reaction will be accelerated and the reaction occurs only with there type of bases.