**RESEARCH HIGHLIGHTS**

* The study introduced semi-synthetic embelin ninhydrin as a dye for the first time and its application as a dye to cotton fiber for the first time.
* The study investigated use of different mordants with embelin ninhydrin dye which gave different shades with cotton fabric and had good fastness properties (4-5) on the Grey scale for the first time
* The study came up with an optimized model of dyeing cotton fabrics with embelin ninhydrin dye at optimum values of pH 9, temperature of 80 $℃$ and time of 60 mins for the first time.