

## Crystal Structure and Electrochemical Properties of 1-(4-bromophenyl)-ferrocene-prop-2-en-1-one and 1-(3-(4-bromophenyl)-5-(ferrocene)-4.5-dihydropyrazol-1-yl) ethenone

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Compounds having redox-active ferrocenyl groups have attracted considerable interest in several branches of Chemistry and Materials Science. Here we investigate a chalcone (compound I) having a ferrocenyl group which is further derivatized to pyrazoline to achieve a hybrid molecule having a ferrocenyl couple to a heterocyclic ring (compound II). These compounds were characterized using spectroscopic techniques including the (<sup>1</sup>H-NMR and <sup>13</sup>C-NMR), UV–Visible and infrared (FT-IR) studies to confirm the structures and investigate the electronic properties of I and II. Furthermore, we confirmed the three-dimensional structures and any relevant interactions among the molecules in their unit cells using single crystal X-ray diffraction analysis. The molecules of both compounds stabilized by the C-H...halogen interactions, where Br acts as a halogen atom. Finally, the redox properties of I and II were accessed by cyclic voltammetry experiments. It is observed that the chalcone derivative has larger oxidation potential than the pyrazoline derivative.

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**Keywords:** Synthesis, Ferrocene, Pyrazoline

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