

Title: **Production and Characterization of Violacein by Locally Isolated Chromobacterium violaceum Grown in Agricultural Wastes**

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### **Abstract**

The present work highlighted the production of violacein by the locally isolated *Chromobacterium violaceum* (GenBank accession no. HM132057) in various agricultural waste materials (sugarcane bagasse, solid pineapple waste, molasses, brown sugar), as an alternative to the conventional rich medium. The highest yield for pigment production (0.82 g L<sup>-1</sup>) was obtained using free cells when grown in 3 g of sugarcane bagasse supplemented with 10% (v/v) of L-tryptophan. A much lower yield (0.15 g L<sup>-1</sup>) was obtained when the cells were grown either in rich medium (nutrient broth) or immobilized onto sugarcane bagasse. Violacein showed similar chemical properties as other natural pigments based on the UV-Vis, Fourier transform infrared spectroscopy, thin-layer chromatography, nuclear magnetic resonance, and mass spectrometry analysis. The pigment is highly soluble in acetone and methanol, insoluble in water or non-polar organic solvents, and showed good stability between pH 5–9, 25–100 °C, in the presence of light metal ions and oxidant such as H<sub>2</sub>O<sub>2</sub>. However, violacein would be slowly degraded upon exposure to light. This is the first report on the use of cheap and easily available agricultural wastes as growth medium for violacein-producing *C. violaceum*.