

Title : Optimization of Red Pigment Production by *Collophorina*-like Fungi

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ABSTRACT

Pigments are essential materials widely used in the textile, cosmetics, food, and pharmaceutical industries. These pigments can be derived from plants and some microorganisms, including fungi. This study focuses on two *Collophorina*-like fungal isolates (PP5 and PP18) preserved in Laboratory room 2812. Their morphological characteristics were investigated by culturing them on half-strength potato dextrose agar at room temperature (25-28 °C) for 28 days. Morphological analysis revealed budding, conidiomata formation, and red pigment secretion into the medium for both isolates. Due to limited existing data on PP5 and PP18, additional factors affecting growth and red pigment production were investigated, including four different media types (agar and broth of potato dextrose, malt extract, Sabouraud dextrose, and Czapek), nitrogen sources (ammonium sulfate, peptone, sodium nitrate, and yeast extract), and carbon sources (sodium carboxymethyl cellulose, mannose, sucrose, and dried sugarcane bagasse). Incubation was performed on a rotary shaker (120 rpm) at room temperature for 21 days. Both isolates exhibited the best growth and red pigment production on potato dextrose agar. In liquid media, they grew best in Sabouraud dextrose broth: PP5 with a dry weight of 0.3414 ± 0.01 g/l and PP18 with a dry weight of 0.3306 ± 0.00 g/l. However, both isolates exhibited the highest pigment yield in Czapek medium. In Czapek medium with peptone as the nitrogen source, PP5 and PP18 showed the best growth, with dry weights of 0.2736 ± 0.02 g/l and 0.2435 ± 0.04 g/l, respectively. Regarding carbon sources, the isolates produced the most intense red pigment with mannitol. However, the highest growth in media occurred with sucrose as the carbon source, resulting in dry weights of 0.2736 ± 0.02 g/l and 0.2435 ± 0.04 g/l, respectively.