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Food functionalization and preservative activity of bioactive colorant prodigiosin

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Prodigiosin (PG) is a natural red colored compound, widely used in pharmacological and biological applications. This investigation focused on nutraceutical and food functionalization potential of natural colorant PG was compared synthetic food colorant erythrosine (ER). The antioxidant potential of PG and ER was examined by DPPH and ABTS radical scavenging method. The bactericidal efficiency of PG and ER were analyzed against six foodborne pathogens. The food shelf life extant ability of PG and ER was analyzed using meat extract powder (MEP) as a model food material. The PG (70.19 g/kg) was biosynthesized from *Serratia marcescens* by solid state fermentation. The scavenging activity of PG was calculated to be 99% and 99.9% were DPPH and ABTS, respectively. ER shows DPPH, 81%; ABTS, 85.9% of radical scavenging was achieved. The scavenging ability of PG was confirmed through UV-visible, EPR, fluorescence spectrum and cyclic voltammetry analyses. The bactericidal



efficiency of PG against the selected foodborne pathogens exhibited significant inhibition on growth than the synthetic colorant and the shelf life of the food was extended in the presence of PG containing food model. Hence, the PG may be used as food colorant and thus significantly reduce the addition of synthetic colorant in food processing industry. This study will bring an innovative approach on food additive for safe and sustainable food process.

Recent Publications

- 1. Arivizhivendhan K V, Mahesh M, Boopathy R, Patchaimurugan K, Regina Mary R, Sekaran G (2016) Synthesis of surface modified iron oxides for the solvent free recovery of bacterial bioactive compound, prodigiosin and its algicidal activity. *The Journal of Physical Chemistry B*; 120(36): 9685-9696.
- 2. Arivizhivendhan K V, Mahesh M, Boopathy R, Regina Mary R, Sekaran G (2016) A novel method for the extraction of prodigiosin from bacterial fermenter integrated with sequential batch extraction reactor using magnetic iron oxide. *Process Biochemistry*; 51(10): 1731-1737.

Biography

Regina Mary R has her passion in educating and empowering the rural young women. She has her expertise in the field of development of bioactive compounds from microorganism for the biomedical application. Her contribution towards preparation of surface modification and bioactive compound conjugated nanoparticle for the treatment of pathogens from water and food system with a molecular mechanistic explanation. She has built this model after years of experience in research, evaluation, teaching and administration both in education institutions. She also has her unique contribution in the field of infection in gastrointestinal track and respiratory track due to the foodborne pathogens and its treatment by probiotics for health benefits of young women.

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