



Microbial pigment as an alternative to synthetic dye

• Jyoti Jha • Kumari Meenu • Pragya Sinha
• Priyragini

Received : November 2016

Accepted : March 2017

Corresponding Author : Priyragini

Abstract : *The present study aimed at evaluating the dyeing potential of microbial pigments for different fabrics like silk and cotton and to develop an eco friendly dye for textiles dyeing. In the present study, total of six pure cultures of bacterial and fungal strains were isolated from different samples on NA, PDA and MSA media. Pigment producing isolates were mass cultivated for the production of pigments and further analysis. The pigment production was screened by taking O.D. at regular time intervals during the incubation period and pigments were extracted by solvent extraction method. Fungal isolates, isolate 3(Aspergillus spp.) and 4(Penicillium spp.) produced green and reddish brown colored pigment respectively and bacterial isolates, isolate 1(Streptococcus spp.),2(Bacillus*

spp.),5(Staphylococcus spp.) and 6(Pseudomonas) produced yellow, brown, dark yellow and green colored pigments respectively. These pigments were applied to fabric and tested for percentage absorption. It was found that pigments showed high affinity for silk fabrics as compared to cotton fabrics. The pigment of Penicillium showed maximum absorption percentage (65.52%) followed by Aspergillus (63.78%), Pseudomonas (55.02%), Bacillus (48.37%), isolate 1(32.66%) and Coccus (31.08%). It has been found that the percentage absorption was more in mordanted fabric as compare to unmordanted fabric.

Key words: *Mordants, pigments, natural dye, synthetic dye, FT-IR*

Jyoti Jha

B.Sc. III year, Industrial Microbiology (Hons.),
Session : 2014-2017, Patna Women's College,
Patna University, Patna, Bihar, India

Kumari Meenu

B.Sc. III year, Industrial Microbiology (Hons.),
Session : 2014-2017, Patna Women's College,
Patna University, Patna, Bihar, India

Pragya Sinha

B.Sc. III year, Industrial Microbiology (Hons.),
Session : 2014-2017, Patna Women's College,
Patna University, Patna, Bihar, India

Priyragini

Asst. Prof., Deptt. of Industrial Microbiology,
Patna Women's College, Bailey Road,
Patna – 800 001, Bihar, India.
E-mail : priyragini01@gmail.com

Introduction :

Colors are one of the most significant visual properties of textiles, food and cosmetics. The textile industry is one among the rapidly growing industries worldwide. In India it accounts for 14% of the total industrial production and contribute to nearly 30% of the total exports. Textile industry is one of the major industry which uses dye in large quantity. Textile industries utilize enormous amount of synthetic dye and consequently these synthetic dye make the textile effluent hazardous for the environment (Kumar et al., 2015).