

# Remediation and Decolourization of Distillery Spent Wash by Using Advanced Oxidation Processes – A Review

Name of Faculty: M. P. Wagh

Other authors: Pravin Dinkar Nemade

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## Remediation And Decolourization Of Distillery Spent Wash By Using Advanced Oxidation Processes – A Review

Manoj Pandurang Wagh<sup>1</sup> and Pravin Dinkar Nemade<sup>2</sup>

1. Dr. Vitthalrao Vikhe Patil College of Engineering, Department of Civil Engineering, Ahmednagar  
2. S. B. Patil College of Engineering, Department of Civil Engineering, Indapur - 413 106

Distillery industries are highly responsible for the tremendous generation of effluent known as distillery spent wash (DSW). Distillery spent wash is caramelized, recalcitrant toxic pollutant, comprehensive undesirable intense dark brown colour non-consumed liquid accompanied by high COD, BOD, highly acidic pH, containing organic and inorganic poisonous ingredient which depends on the raw material furnished. Distillery spent wash also contains sugar decomposition products, such as anthocyanin, tannin and xenobiotic compounds. It causes aquatic and soil pollution due to strong brown colour recalcitrant melanoidin pigment which results in the obstruction of photosynthesis, eutrophication and low pH that acidifies the soil, affecting crop growth. Thus, creating an ecological imbalance and big environmental hassle. Hence, there is the urgent need for removal of colour and pollutants from distillery effluent which has become essential for green chemistry and is approved hygienically. Novel advanced technologies have been used to reduce colour and COD. The current review paper gives an insight of electrocoagulation process and advanced oxidation processes, such as ozone, fenton, UV, hybrid treatment to treat distillery spent wash.

**KEYWORDS**  
Ozonation, Advanced oxidation, Wastewater, COD, Colour, Electrocoagulation, Distillery spent wash, Biodegraded effluent

**1. INTRODUCTION**  
In India, there are 319 distilleries generating 40.4 billion litre of unwanted residual liquid waste called DSW [1]. On an average 1 L of alcohol, production generates 12-15 L of wastewater [2,3]. The distillery material [11]. The colour of molasses distillery wastewater is mainly allocated due to melanoidin alkaline degradation as a consequence of hexoses, polyphenols, caramels [12]. Melanoidin (C<sub>17-18</sub>H<sub>16-27</sub>O<sub>10</sub>N, molecular weight - 5000-40,000) is formed by Maillard reaction between the amino acid and carbonyl group [13]. Biological treatments, such as anaerobic digestion activated sludge process (ASP), anaerobic lagoon and aerobic process are found to be ineffective to degrade the melanoidin [14,15,16]. Physico-chemical technology is found

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Dr. Pravin Dinkar Nemade  
PRINCIPAL  
Dr. Vitthalrao Vikhe Patil  
College of Engineering  
Ahmednagar