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Olive Mill Wastewater as Feedstock

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A liquid waste (OMWW), generated during the production of olive oil, comprise of water which is generated in the treatment and washing process of olive, leakage of pomace and vegetation water of olive.[1] OMWW has dark brown or black color, excessive odor of olive oil, inorganic elements and high amounts of organics.[2,3] When discharged into the natural environment, this composition can cause many environmental issues.[4] Moreover, organics in OMWW are nonbiodegradable (COD/BOD : 2.5-5.0) as well as have very high concentrations (40-220 g/L COD) which makes wastewater treatment difficult.[5]

OMWW cannot be evaluated economically yet and mainly its treatability is being studied.[1,3] The commonly studied and applied treatment methods for treatment of OMWW are physical (evaporation, floatation and settling process), chemical (chemical coagulation, oxidation and settling process), biological (aerobic and anaerobic process), physicochemical and successful combination of different methods. COD removal efficiencies are between 10-50% in most of these treatment methods, and in rare processes such as membrane system, it increases to over 90%. Regardless of COD removal efficiency, generally non-biodegradable organics in OMWW can remain in the treatment effluent or sludge in most processes without degradation. Combined chemical treatment methods that break down these components have the potential to form dangerous intermediates and / or by-products. On the other hand, OMWW highly contains phenolic substances, polyaromatic hydrocarbons and other organics that cause phytotoxic odor.[6] In this study, organic components in OMWW were identified, classified according to their structures and structures which left in treated water without decay were revealed and potential usage areas for each of them were investigated. Thus, the study proposes an approach to treat OMWW as an important source of raw material rather than an important environmental problem. With this proposed approach, OMWW will become an economic value and more easily treatable wastewater since biodegradability increases.

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