Plasticizers are additives to plastics designed to increase their durability and flexibility. Since plasticizers are not chemically bound to the polymer they can leach from the matrix into the environment [1]. Phthalates are ubiquitous environmental contaminants that possess possible estrogenic properties. Dimethyl phthalate ester (DMP) is typically used in cellulose ester based plastics, such as cellulose acetate and butyrate. They are considered to be a ubiquitous pollutant in aquatic environments (around 100 mg/l) because large quantities of DMP are released into the environment in their whole lifetime.

Adsorption is one of the most extensively used technologies to remove and recovery organic contaminants from contaminated water [2], with activated carbon being the most conventional adsorbent [3]. In this study, poly (ethylene glycol dimethacrylate-methacryloyl-amidotryptophan methyl ester); poly [EGDMA-MATrp] beads were prepared and used for DMP removal from the aqueous phase. The effects of various experimental parameters such as operation pH, initial concentration, contact time, and temperature to DMP adsorption were determined. The maximum DMP adsorption capacity of the mag-poly (EGDMA-MATrp) beads was determined as 123.0 mg/g at pH 4.0, 25°C. The adsorptive capacity of poly (EGDMA-MATrp) beads for DMP removal has a potential applicability for industrial wastewater treatment.

KEYWORDS: DMP, adsorption, removal, poly (EGDMA-MATrp)

REFERENCES: