Removal of different types of microplastics from the water by coagulation and flocculation

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1. INTRODUCTION

Microplastics: priority pollutants

•Wastewater treatment plants can be considered a place where microplastics are removed, but also, unfortunately, a place of concentration of these pollutants and their source in the environment.

•coagulation and flocculation have been identified as potentially efficient processes that are also often used in water treatments (Jar test).

2. MATERIALS AND METHODS

Table 1. Matterials and methods

Matrix	MPs	Coagulants
•Synthetic matrix •Waste water from washing machine	•PE •PVC	• $FeCl_3$ (20-220 mg/l and 80-1600 mg/l) •PaCl (10-50 mg/l and 75-150 mg/l)

3. RESULTS AND DISCUSION

Table 2. Removal efficiency in synthetic matrix

$FeCl_3$		PaCl	
PE	PVC	PE	PVC
3-70%	63-93%	5-13%	73-98%

Table 3. Removal efficiency in waste water from washing machine

$FeCl_3$		PaCl	
PE	PVC	PE	PVC
8-63%	41-45%	36-48%	/

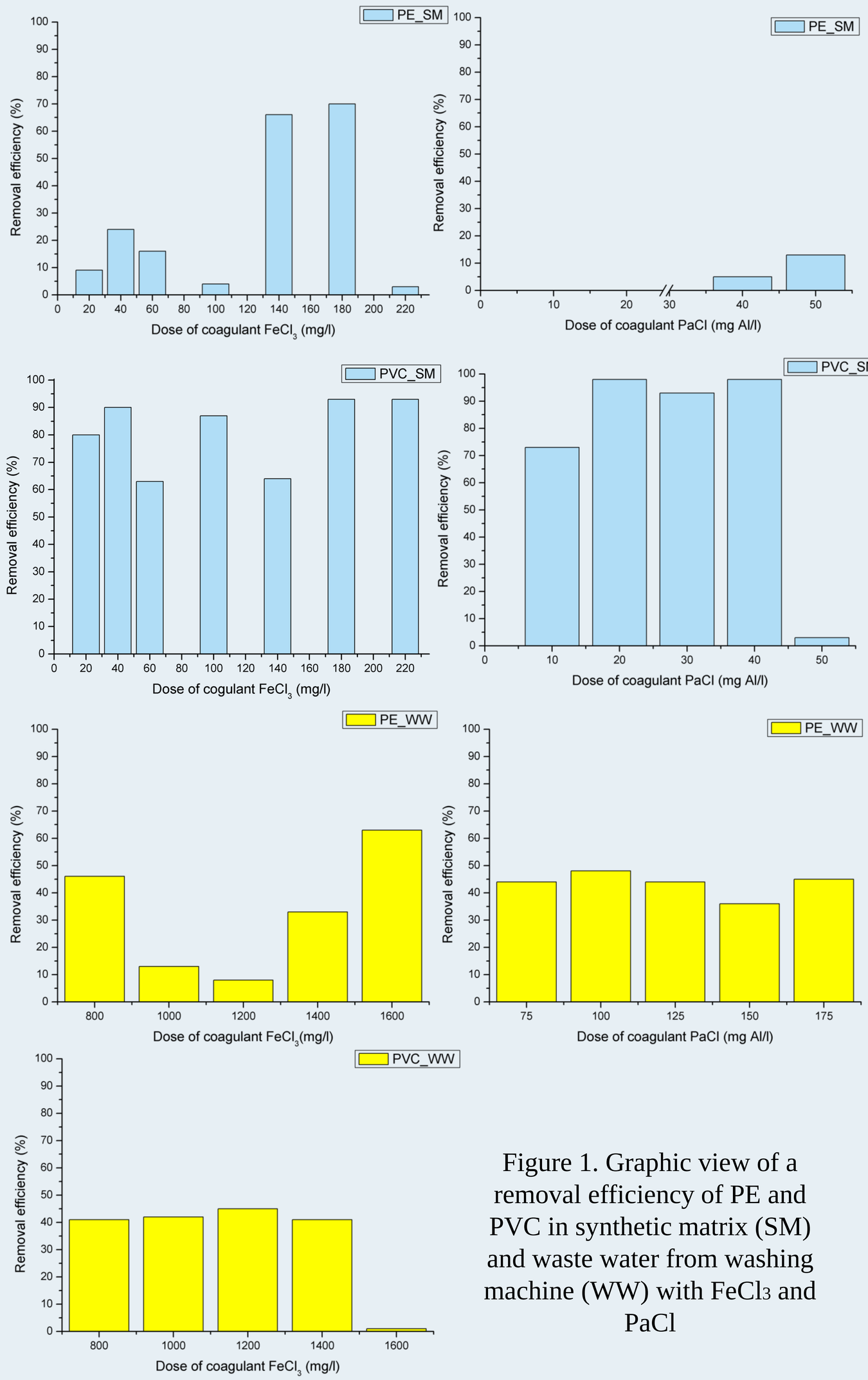

Figure 1. Graphic view of a removal efficiency of PE and PVC in synthetic matrix (SM) and waste water from washing machine (WW) with $FeCl_3$ and PaCl

4. CONCLUSION

✓The removal of microplastics with this treatment is influenced by several different factors, such as the characteristics of microplastics themselves, as well as the dose of coagulant.

✓This research will contribute to a better understanding of the microplastic removal mechanism at wastewater treatment plants with conventional techniques that are readily available.

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