

EVALUATION OF MUNICIPAL WASTEWATER TREATMENT PLANT WITH DIFFERENT TECHNOLOGIES AT EXTREMADURA (SPAIN)

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INTRODUCTION: Extremadura is an autonomous region in southwestern Spain. The total surface area is around 41.633 Km², ranking 5th in area among the Spanish autonomous regions. The total population is 1,086,373 inhabitants, with 50% located in urban areas. Decentralized treatment plants process most of the wastewater produced by this population.

METHODS: Thirty small-scale wastewater treatment plant were evaluated, 21 in the province of Badajoz and 9 in that of Cáceres.

RESULTS AND DISCUSSION

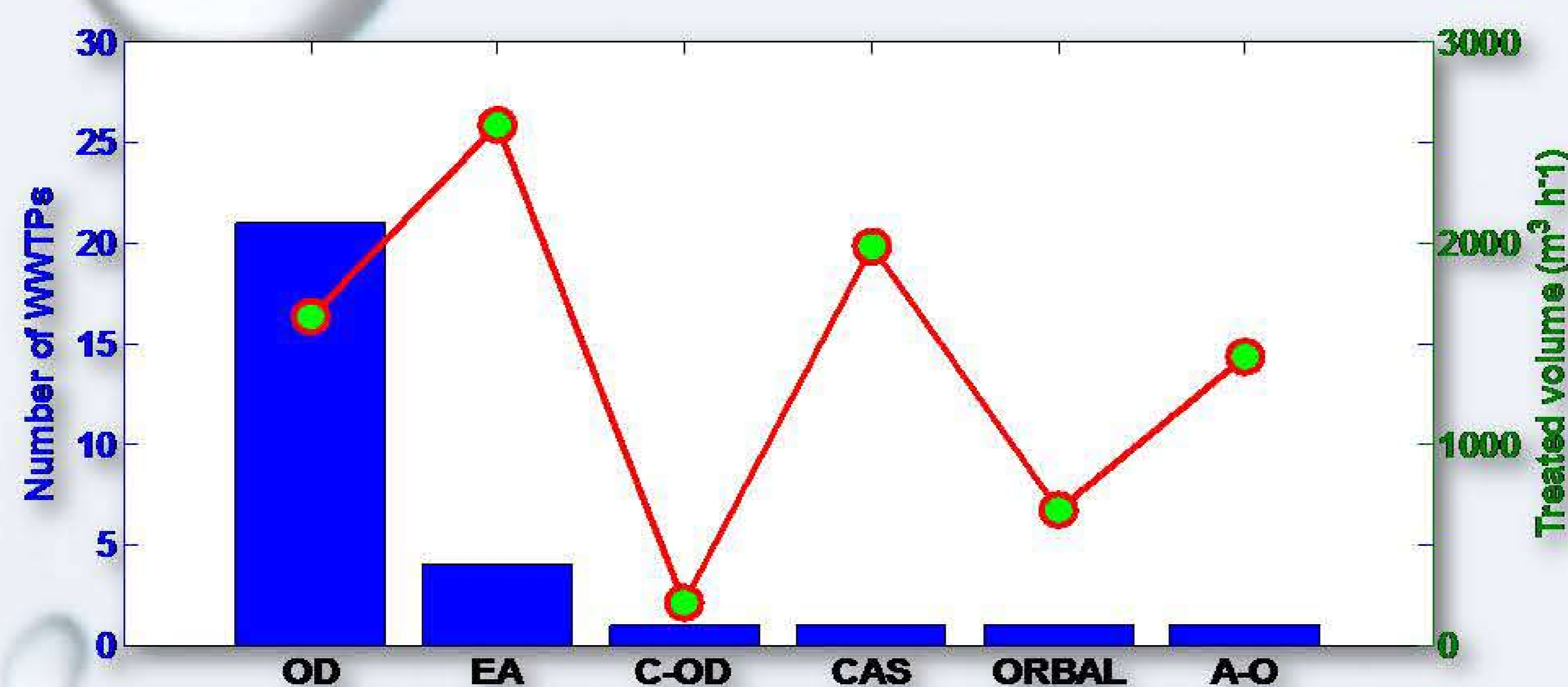


Figure 1. Typical processes applied in municipal WWTPs and their treated volume.

Table 1. Performance of major WWTP processes in Extremadura in 2007 (unit, mg/l)

	COD % removal	NH ³ -N % removal	NTK % removal	PT % removal
OD	85-95	60-90	20-60	8-43
EA	80-90	50-80	30-70	30-50
C-OD	85-95	55-75	30-60	8-30
CAS	65-85	40-55	10-30	22
ORBAL	77-95	30-90	40-80	25-80
A-O	85-90	60-90	20-50	20-60

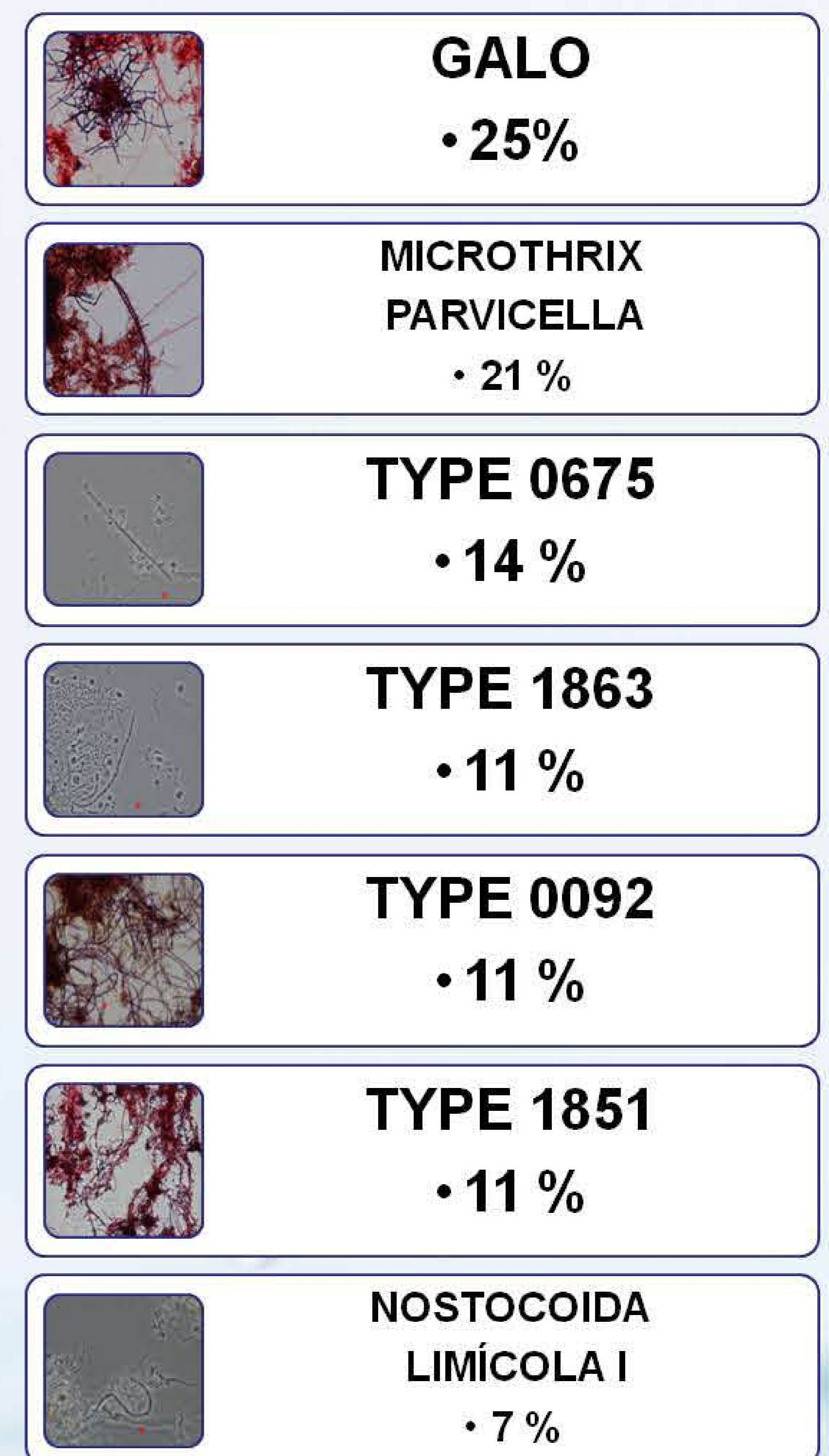


Figure 2. Distribution of typical filamentous bacteria.

CONCLUSIONS: The study of the bulking and foaming problems along with their relation with the settling process efficiency in municipal WWTPs in Extremadura points out that these problems are widespread. It is clear that the excessive quantities of filamentous organisms is related to problems with the management systems of the WWTPs induced by low aeration rates, inappropriate sludge retention time, wastewater feeding regime, especially intermittent, and changes in plant operating conditions. These facts, highlights the need to develop new management systems and new engineering solutions.

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