

Unveiling the Mystery of Biofilm Formation: Insights from *Klebsiella* isolated from Hospital Wastewater VS Surface Water

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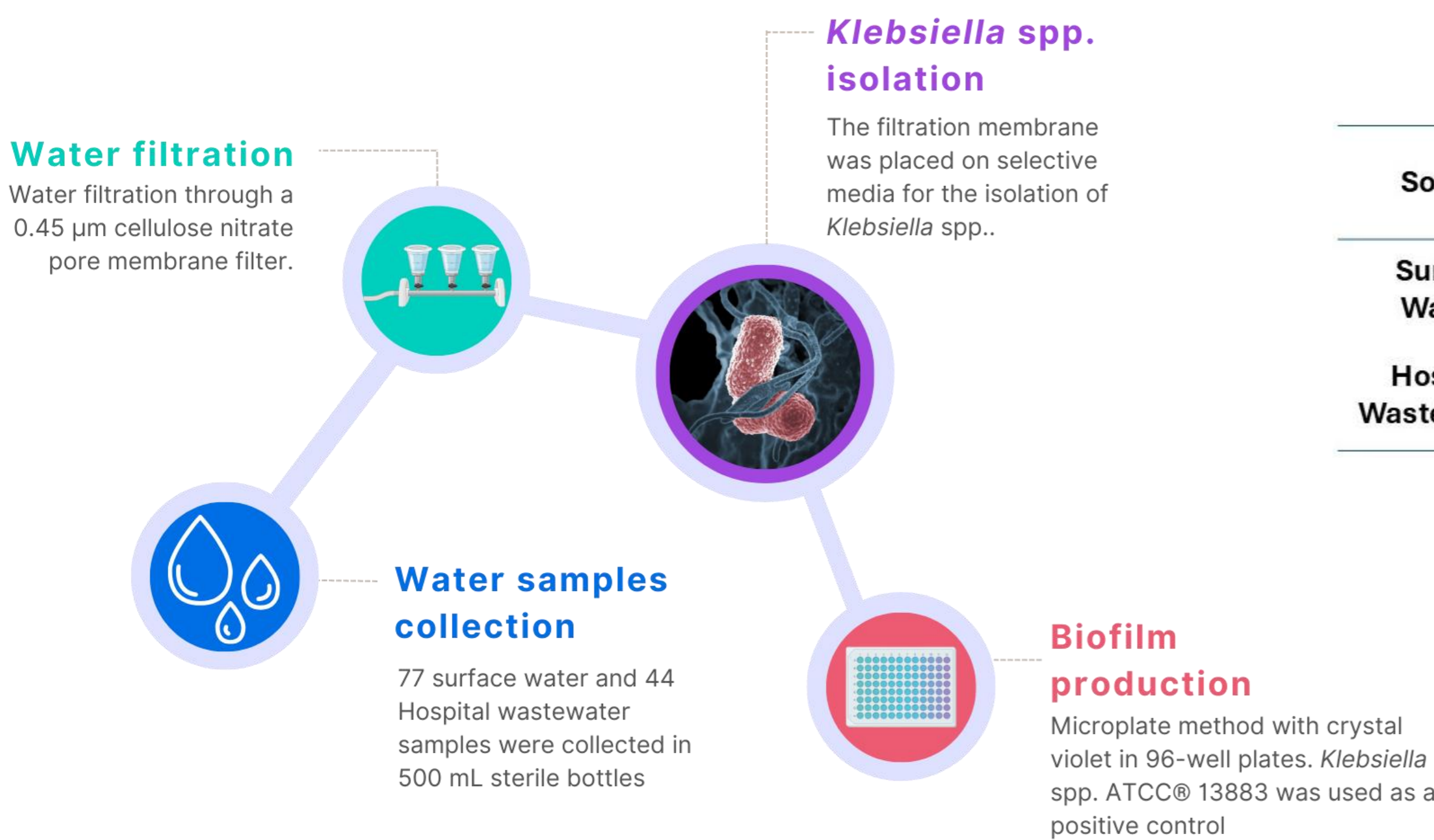
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INTRODUCTION & AIM

Antibiotic-resistant *Klebsiella* has emerged over the past few decades as a major public health threat [1]. Furthermore, bacterial infections associated with biofilm production are significant, accounting for approximately 65-80% of all cases [2]. Therefore, the purpose of this study was to assess the prevalence of biofilm formation in *Klebsiella* isolated from surface water and hospital wastewater.

METHODS

Seventy-seven surface waters and forty-four hospital wastewater samples were collected in Northern of Portugal. Biofilm production was evaluated using the microtiter plate assay.

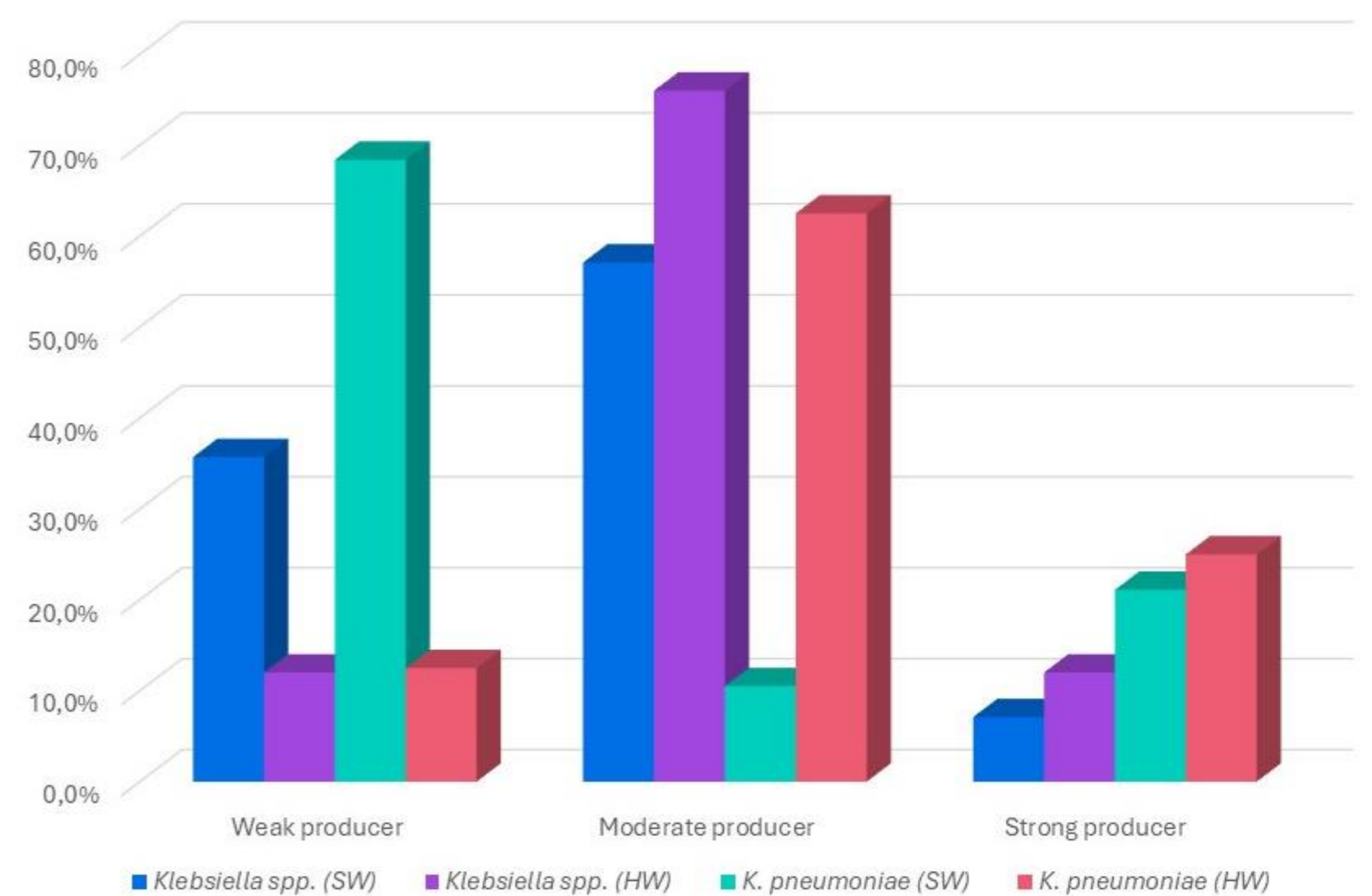


RESULTS & DISCUSSION

From the 77 samples collected from different surface waters in the North of Portugal, 33 *Klebsiella* (14 *Klebsiella* spp. and 19 *K. pneumoniae* strains) were isolated. Conversely, 41 *Klebsiella* (25 *Klebsiella* spp. and 16 *K. pneumoniae* strains) were isolated from 44 samples collected in hospital wastewaters in northern Portugal.

The 33 and 41 *Klebsiella* strains from surface waters and hospital wastewaters, respectively, were categorized into three groups based on biofilm production results, these are weak biofilm producer, moderate biofilm producer, and strong biofilm producer.

Source	Species	No. of isolates	Weak producer	Moderate producer	Strong producer
Surface Waters	<i>Klebsiella</i> spp.	14	5	8	1
	<i>K. pneumoniae</i>	19	13	2	4
Hospital Wastewaters	<i>Klebsiella</i> spp.	25	3	19	3
	<i>K. pneumoniae</i>	16	2	10	4



CONCLUSION

With this, it is concluded that understanding and addressing biofilm formation is crucial for developing effective strategies for preventing and treating bacterial infections. Furthermore, detecting and controlling the spread of these and employing a One Health approach is vital for managing this problem effectively.

REFERENCES

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