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Cytogenotoxicity in Recreational Port Waters: Nuclear Abnormalities in Limpets Linked to Petroleum Exposure

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INTRODUCTION & AIM

The rise in maritime traffic puts more pressure on marine environments (Jägerbrand et al., 2019).

Biomonitoring projects evidence a correlation between genotoxicity and chronic harmful effects to animal populations (Myers et al., 2008).

Two different experiments: in situ analyzing genotoxicity in limpets from different marinas, and in the lab analyzing genotoxicity induced by different boat contaminants.

We used the MN test in limpets to assess the genotoxicity of waters from South Bay of Biscay marinas with different maritime traffic and usage of fuel and cleanser types.

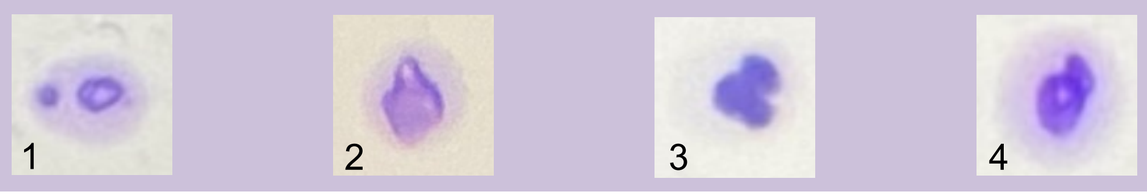
MATERIAL & METHODS

Four different marinas sampled. From most to least contaminated: Gijón, Avilés, Nalón and Ribadesella.

Three different contaminants studied in the lab: petrol, diesel and ecological soap.

Two slides per sample were stained with GIEMSA solution. From each slide, 1000 gill cells were scored.

Nuclear abnormalities classified in: micronucleus (1), blebbed (2), lobed (3), notched nucleus (4); and other abnormalities.



RESULTS & DISCUSSION

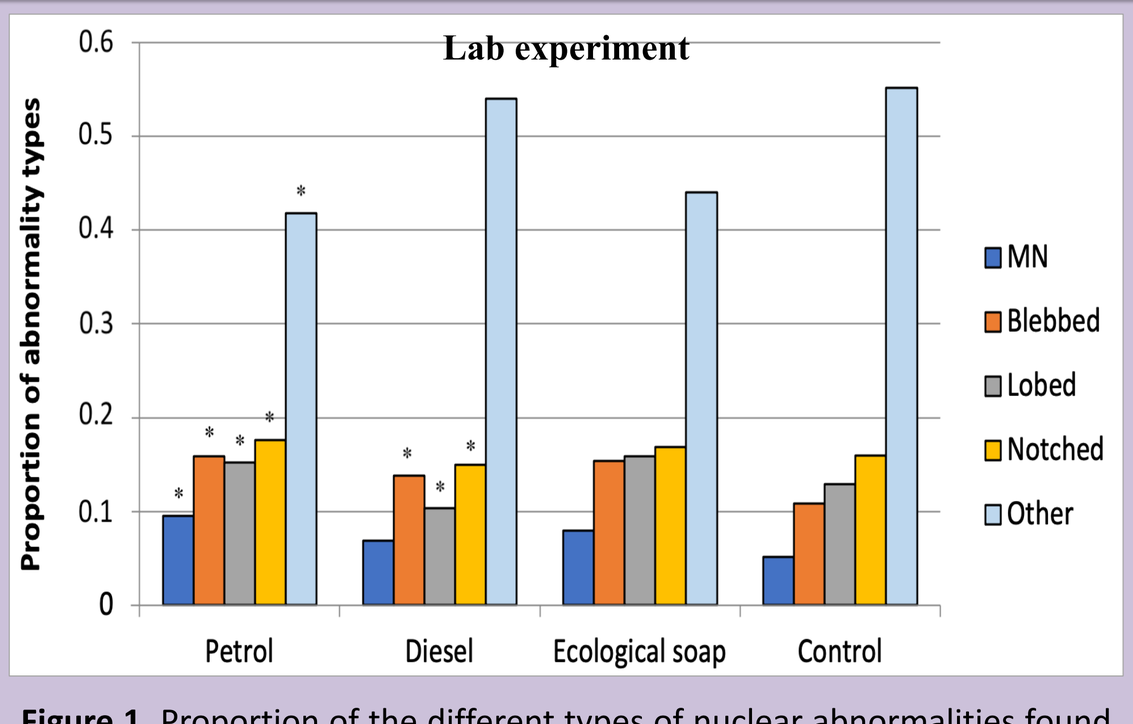


Figure 1. Proportion of the different types of nuclear abnormalities found in the four experimental groups

Petrol caused more nuclear abnormalities than the other treatments, followed by diesel.

Ecological soap showed no difference in nuclear abnormalities when compared with the control group.

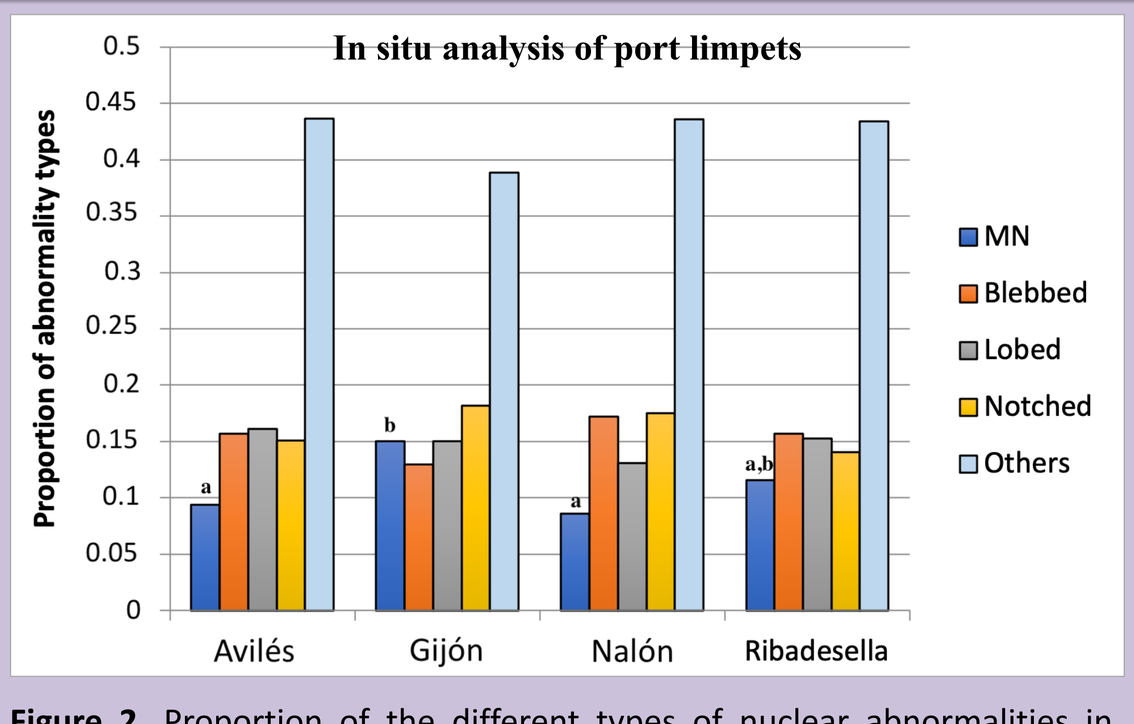


Figure 2. Proportion of the different types of nuclear abnormalities in limpets sampled from the marinas

Limpets from Gijón exhibited the most nuclear abnormalities, followed closely by limpets from Avilés.

Limpets from the Nalón marinas exhibited a higher frequency of nuclear abnormalities than Ribadesella.

CONCLUSION

The results of this study confirm that recreational boating, and in particular the size of the population, contributes to cytogenotoxicity in limpets from South Bay of Viscay.

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