UNIVERSITY OF WESTMINSTER

STUDENTS AS CO-CREATORS

Antibiotics Undersea

School of Life Sciences Co-creators

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Background

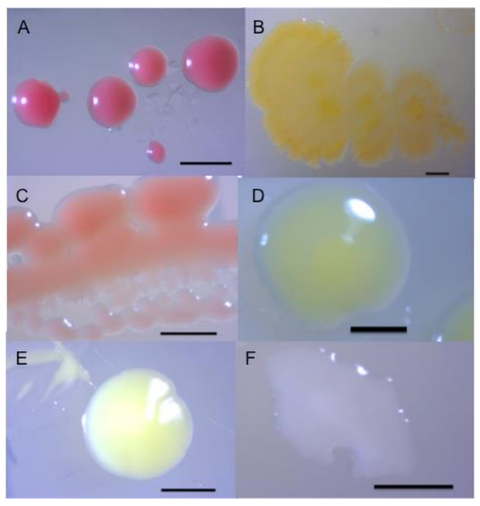
The halophilic (salt-loving) bacterium *Vibrio parahaemolyticus* occurs in seawater and particularly in summer months may be found in seafood such as shellfish that if consumed raw or undercooked may result in life-threatening disease. It is considered an increasing global public health threat. Importantly, *V. parahaemolyticus* has developed resistance to multiple antibiotics, attributed to misuse predominantly in aquaculture production and so there is a need to find new antibacterial compounds to target this species. Some soil bacteria have been shown to produce antimicrobial compounds as natural defence mechanisms so we have researched whether six bacteria cultures isolated from UK marine sediments could produce compounds to inhibit the growth of *V. parahaemolyticus.*

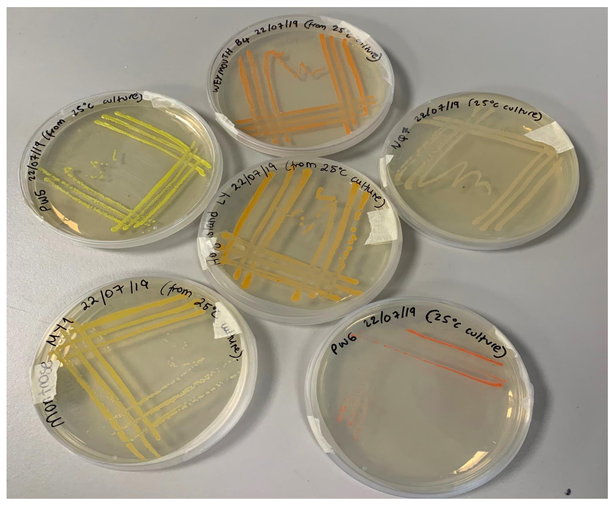
Methods

1. Marine sediments were collected from sites around the UK and bacteria cultures generated.

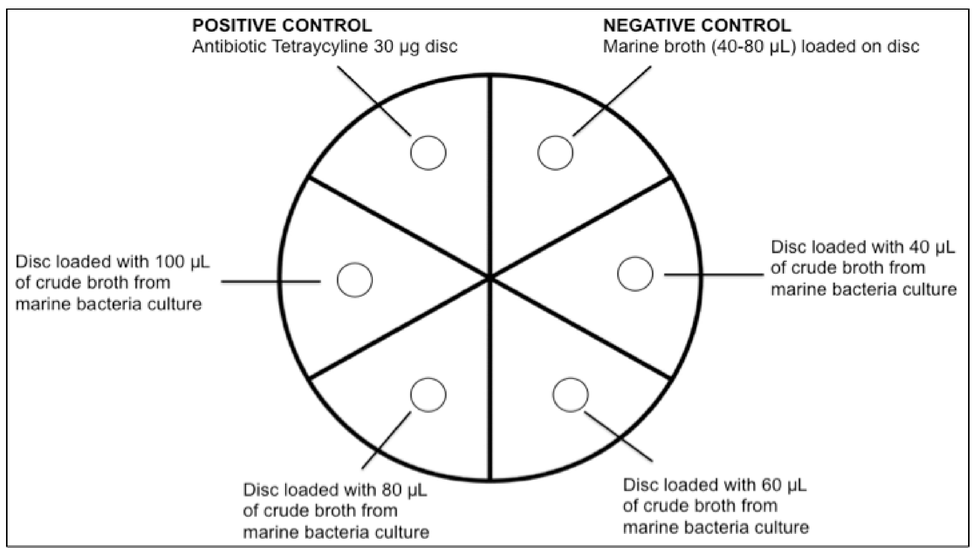
2. We had a stand at the 2019 Science4sustainability Schools' conference to spread the word about antibiotic resistance.

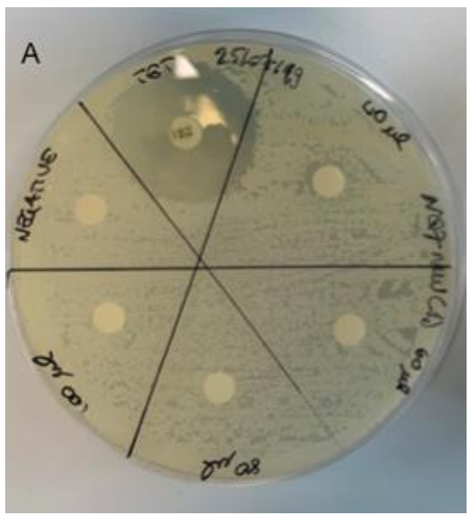
3. Students as co-creators learnt to grow marine bacteria and the bacteria created some very interesting pigments.



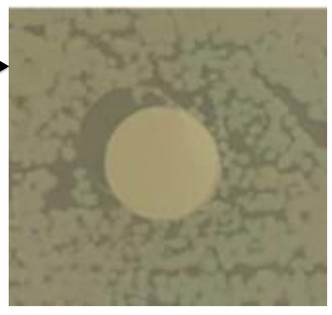


4. The *Vibrio parahaemolyticus* was exposed to broth extracted from the marine cultures to see if this inhibited growth.





The NQ7 extract inhibited some growth



Our findings

For the first time we have grown a number of new marine bacteria cultures in liquid culture and discovered they have maintained interesting pigments, which is exciting as marine pigments have a range of potential pharmacological uses and this is a source for future research. From this project we have also shown that the culture NQ7 from New Quay, Wales may produce compounds that have the ability to stop the growth of *Vibrio parahaemolyticus*. Our next exploratory steps will focus on this culture and use more complex techniques to extract and then identify compounds of interest, alongside using DNA genome sequencing to search for genes of interest . Our hope and goal is to develop new antibiotics for use by future generations.