**Introduction**

Effects of tributyltin (TBT) on aquatic organisms:

- **TBT is toxic substances** which is used as a biocide in anti-fouling paint, commonly known as bottom paint, applied to the ships, boats, and hulls etc.
- The toxicity of TBT prevents the growth of algae, barnacles, mollusks, and other organisms on the ships' hulls.
- When introduced into a marine or aquatic environment, TBT adheres to bed sediments.
- The effects of antifouling paint go beyond the organisms that it is intended to kill. By poisoning barnacles, algae, and other organisms at the bottom of the food chain, the bioaccumulation of TBT increases over time affecting more and more of the bottom feeders of the aquatic food web environment, which are mainly not only invertebrates but also vertebrates.

**American oyster:**

- Why should we care about oyster?
- This marine bivalve is an excellent indicator species for coastal pollution due to specific traits such as sessile and filter feeder.
- Great reef builders and prevent coast flood damage.
- Provide shelter for fishes and crabs or small organisms.
- Popular seafood dish in the world.
- **OYSTERS BRING IN MILLIONS $$ TO THE US ANNUALLY!**
- They can filter over 50 gallons of water a day providing many benefits in healthy ecosystem for other marine species.
- Provide many human health benefits such as:
  - Weight loss
  - High protein content
  - Protect heart health
  - Increase blood circulation and immune functions
  - Maintain bone health

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**Hypothesis**

To determine the effects of TBT on oxidative stress and DNA damage of 8-OHdG and dsDNA expression in oyster tissues.

**Methods**

**Laboratory Experiment**

**TBT exposure** in **Low Dose** (LD: 0.1 µg/L) and **High Dose** (HD: 1 µg/L) for 1 week.

**Collect pH Data**

**Protein Analysis**

**Collect Tissues**

**Histological Analysis**

**Immunohistochemical Analysis**

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**Results**

Effects of TBT exposure on morphology of gills and digestive glands in oysters.

Effects of TBT exposure on 8-OHdG expression in gills and digestive glands of oysters.

Effects of TBT exposure on dsDNA expression in gills and digestive glands of oyster.

Effects of exposure on pH and protein concentration in extrapallial fluid (body fluid) of oysters.

**Conclusion**

TBT leads to decreased body fluid pH which may lead to increased oxidative stress and induced 8-OHdG expression and dsDNA breakage in oyster tissues.

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