

SWASTIIK

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In news- A novel hybrid technology called SWASTIIK has been developed **to disinfect water completely and also offer possible health benefits of natural oils.**

About the technology-

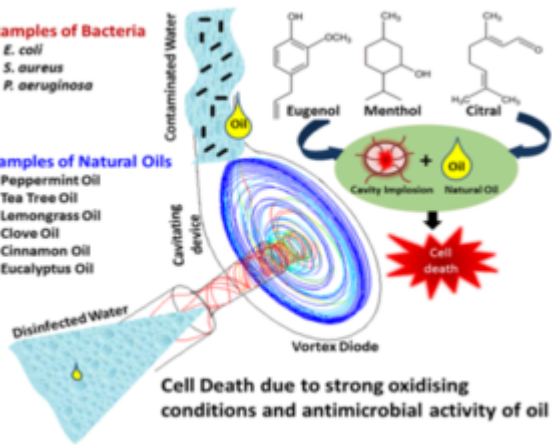
- The technology is called **SWASTIIK (Safe Water and Sustainable Technology Initiative from Indian Knowledgebase)**.
- It provides safe and healthy drinking water at low cost with substantial ease of operation, scale-up, and without harmful disinfection by-products.
- It is developed by **scientists at CSIR-NCL Pune, with support from the Water Technology Initiative** of the Department of Science and Technology (DST), Government of India.
- The technique used **hydrodynamic cavitation** combines chemistry, biology, and chemical engineering along with natural resources in the form of **natural oils and plant extracts**.
- The process, which draws inspiration from Indian traditional knowledge, has resulted in **increased efficiency and reduced cost** of water treatment.
- The team achieved **complete elimination for gram-negative E. coli and gram-positive S. aureus bacteria** and even AMR bacteria/ difficult opportunistic pathogenic bacteria typically in 5-10 minutes.
- It was observed that **increased rates of disinfection using oil can drastically reduce the time of operation.**

Examples of Bacteria

- *E. coli*
- *S. aureus*
- *P. aeruginosa*

Examples of Natural Oils

- Peppermint Oil
- Tea Tree Oil
- Lemongrass Oil
- Clove Oil
- Cinnamon Oil
- Eucalyptus Oil



Cell Death due to strong oxidising conditions and antimicrobial activity of oil