

A stylized illustration of a human ear, rendered in purple and green outlines, positioned on the right side of the page.

BYE TO BACTERIA

BE AWARE, WASH WITH CARE

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HISTORY OF SOAP

3000 BC-
Soap Recipes Dated



2800 BC-
First ever soaps
made from
wood ashes and
animal fat to
wash laundry



1791 -
Laundry soap had
advanced and started
to use salt instead of
wood



1800-
Liquid soap was not
invented until the 19th
century



1861-
First ever soap for
human hygiene
due to the civil war

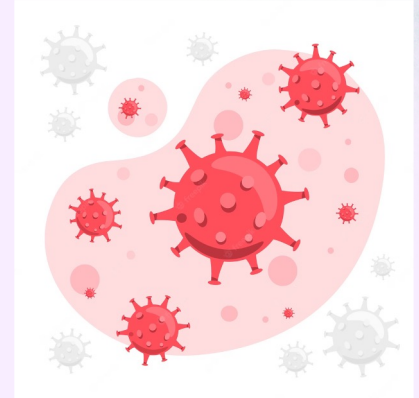


1914- German engineers
discovered 'detergent'



HOW DO BACTERIA SPREAD AND AFFECT PEOPLE ?

- Bacteria are transmitted to humans through air, water, food, and/or living vectors. The principle modes of transmitting of bacterial infections are contact, airborne, droplet, vectors and vehicular.
- Infectious disease are caused by harmful organisms that get into your body from the outside, like viruses and bacteria.



WHAT CAN WE DO TO STOP DISEASES FROM SPREADING?

There are several steps that individuals and communities can take to stop the spread of diseases, including:

- **Practicing good hygiene:** This includes regularly washing your hands with soap and water, covering your mouth and nose when coughing or sneezing, and avoiding touching your face.
- **Get vaccinated:** Vaccines are a highly effective way to prevent the spread of many infectious diseases.
- **Clean and disinfect surfaces:** Regularly cleaning and disinfecting frequently touched surfaces can help prevent the spread of germs.

ARE PEOPLE IN OTHER PARTS OF THE WORLD AT MORE RISKS?

- **Developing countries are more at risk to diseases due to there being no clean water and less medicine and doctors available to the public**
- **This causes disease to spread more easily and infect more people considering no effective hand washing can be done.**



HOW DOES WATER QUALITY DIFFER AROUND THE WORLD?

Water quality can vary widely around the world depending on a variety of factors, including the sources of water, human activities, and natural conditions. Here are some examples of how water quality can differ around the world:

- **Source of water:** The quality of water can vary depending on its source, such as surface water or groundwater
- **Human activity:** Human activities such as agriculture, industry, and urbanization can have a significant impact on water quality.
- **Natural conditions:** Natural conditions such as geology, climate, and vegetation can also influence water quality.

IS SOAP AS EFFECTIVE AS MORE EXPENSIVE PRODUCTS?

- While there are many expensive hand hygiene products available on the market, such as antibacterial soaps, sanitizers, and disinfectants, they are not necessarily more effective than soap.
- In fact, some studies have suggested that using antibacterial soaps may be less effective than regular soap and water, as they can contribute to the development of antibiotic-resistant bacteria.
- That being said, it is important to note that some expensive hand hygiene products may have added benefits, such as moisturizing agents.

WHAT SORT OF DISEASES MIGHT WIDESPREAD HAND WASHING HELP PREVENT

Widespread handwashing can help prevent the spread of a wide range of infectious diseases, including:

1. **Respiratory infections:** These are transmitted through droplets that are expelled.
2. **Gastrointestinal infections:** Handwashing can help prevent the spread of gastrointestinal infections, which are often transmitted through contact with fecal matter.
3. **Skin infections:** Handwashing can help prevent the spread of skin infections, which are often transmitted through contact with infected skin.
4. **Eye infections:** Handwashing can help prevent the spread of eye infections, which can be transmitted through contact with infected eye secretions.

RESOURCES

Materials:

- Liquid soap
- Antibacterial soap
- Hand sanitizer
- Hand wipes
- Water
- 6 agar plates and tape
- Incubator
- Contaminant (persons hand)

Water -



Liquid Soap-



Hand Wipes-



Hand Sanitiser-



Antibacterial
Soap-



VARIABLES

Independent variables:

- Type of soaps

Dependant variables:

- The effectiveness of the soap and how well it can kill bacteria

Control variables:

- The person's hand
- Temperature
- The time of incubation

PROCEDURE:

- Set out one petri dish and using one person's hand throughout the whole practical. Rub any finger onto the petri dish.
- For the other 5 petri dishes you will need to label them for each finger e.g. Petri dish one- index finger [type of soap] and the date.
- Now with the first soap and finger the soap onto your hands for 20 seconds without using water and then rub that finger and onto your labelled agar plate. After this, seal your plate with tape and the lid and keep it upside down to stop it from condensing from condensing .
- Repeat this step for all 5 fingers on to each plate using a different soap or disinfectant.
- Let all 6 of your petri dishes incubate at 25-27°C for 72 hours.
- At the end compare all of the petri dishes to the petri dish with no soap to see the effectiveness for their prices also you can see weather that particular soap is effective or not .

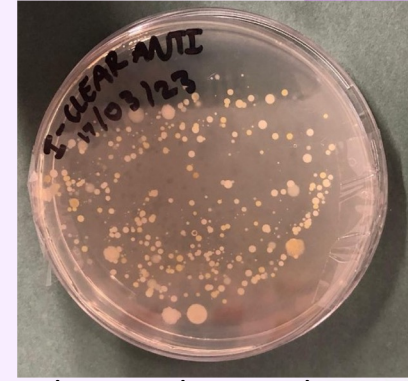


Water-17/03/23

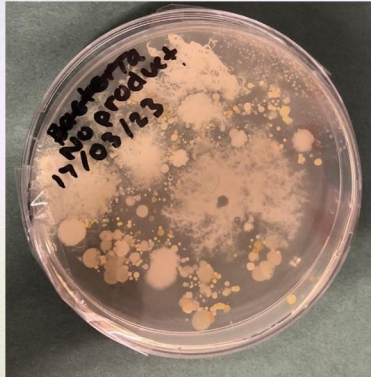
RESULTS



wipes-17/03/23



Clear antibacterial soap
17/03/23



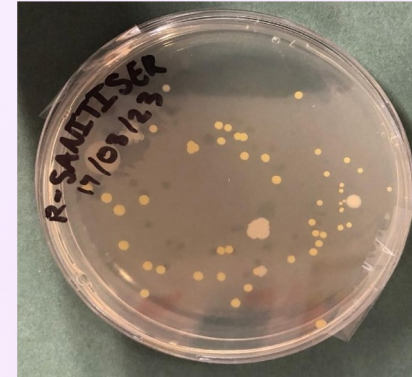
No product-17/03/23



Blue hand soap -
17/03/23



White antibacterial
soap-17/03/23



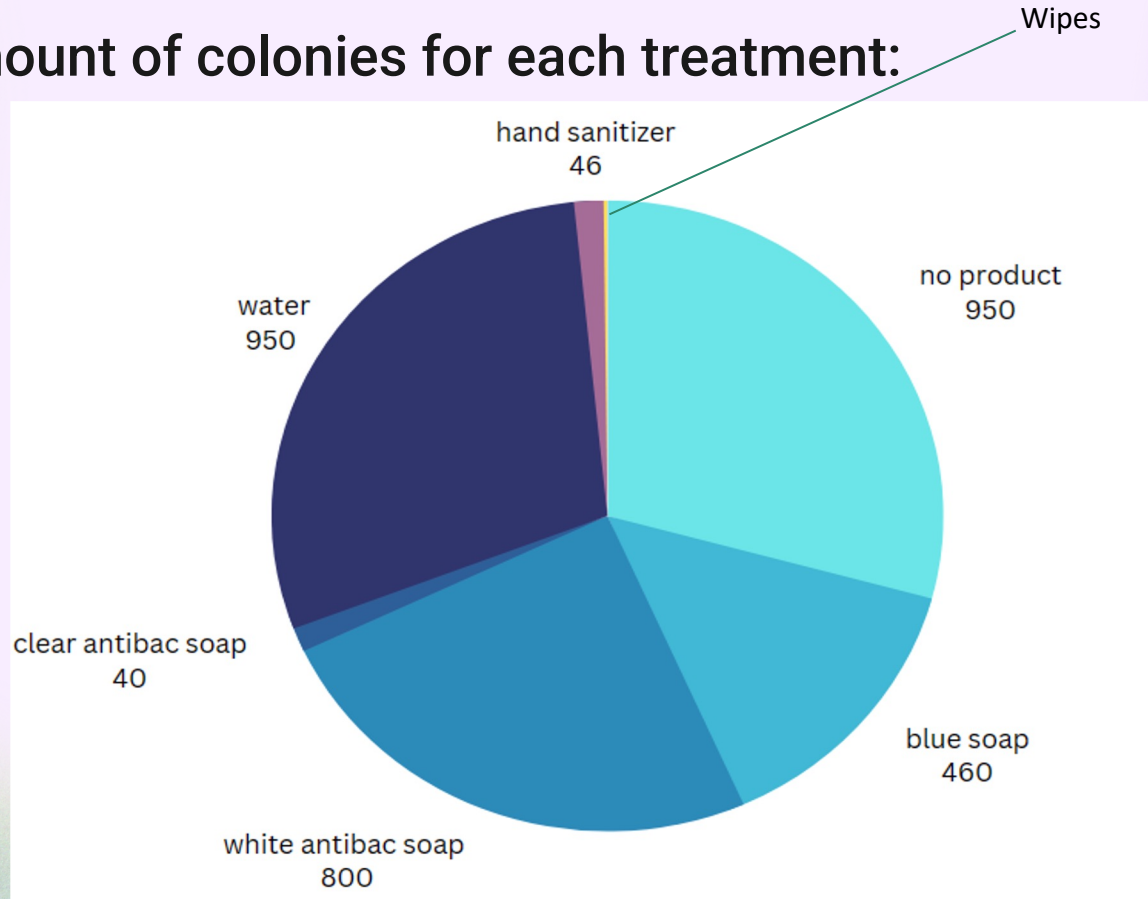
Hand sanitiser
17/03/23

RESULTS TABLE

<u>Treatment</u>	<u>No of species</u>	<u>No of colonies</u>	<u>Fungi- yes or no</u>
1-No product	4	950	yes
2-Blue Liquid soap	3	460	no
3-White antibacterial Soap	3	800	no
4-Clear antibacterial soap	3	40	no
5-Wipes	2	6	no
6-Water	2	950	yes
7-Hand sanitizer	2	46	no

OUR RESULTS

The amount of colonies for each treatment:



EVALUATION

What went well:

- It was successful and had a great set of varied results
- Proof for prediction
- shows varied effectiveness of the different antibacterial products.

Even better if:

- Experiment could be repeated for for reliability and
- could find an average data [mean]
- could repeat experiments with more different types of antibacterial products

CONCLUSION

As we can see the results came out quite varied and unexpected. The most effective way to clean your hands shown by this experiment is to use wipes, we can see this as it has the least amount of species, colonies and fungi.

Yet the most ineffective way to clean your hands is to just wash them with water. This is able to prove to us that no matter how clean or dirty your hands are washing them with just water won't be effective and water carries bacteria within itself whilst travelling through the pipes to reach our hands.

So what are the most efficient products to use?

Looking back to the photos of the experiment, wipes and clear antibacterial soaps are the most reliable products for dirty hands.

A stylized graphic of an ear, composed of concentric, irregular shapes in shades of purple, green, and light blue, located in the upper right corner of the image.

THANK YOU FOR
LISTENING

and

BE AWARE, WASH WITH CARE.

A stylized graphic of an eye, featuring a solid green iris and a dark green pupil, surrounded by purple and light blue wavy shapes, located in the lower right corner of the image.