Studying the effect of using lemon peel and moringa plants as a gray water purifier

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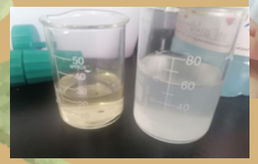
photos



	Before the purification process	After the purification process
Salinity	٢,٧٠	٢,٥٠
Acidity	٨,٠٥	٧,١
Transparency	٨٠	١٢٠
Oxygen	١	٦

Water properties	Washing machine water	Water after treatment (purification)
coliform bacteria	٨٠.٥mpn	٠
Salinity	٢١٢	٢٠٤
Acidity	٧,٨	٧,٤

References

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summary:

Our research aims to study how to use dried lemon peels and ground moringa in purifying gray water, as well as what is the difference between the properties of the two samples of washing machine water before and after purification in terms of transparency, salinity acidity and oxygen

With increasing interest in environmental sustainability and reuse of water resources, purifying used washing machine water is a major environmental and economic challenge. The research includes studying the use of low-cost, environmentally friendly natural materials such as dried lemon peel and dried and ground moringa leaves in purifying washing machine water. To answer the research questions, we dried the lemon peel and moringa leaves, ground the moringa into a powder in the form of a powder, and placed specific amounts of materials in the purification tool so that the washing machine water could pass through it to evaluate its effectiveness in removing pollutants (oils, detergents). This became clear to us by measuring the acidity, salinity, transparency, and oxygen before and after purification. We concluded that lemon peel has the ability to absorb oils and odors because it contains acidic compounds and aromatic substances. Moringa leaves are also efficient in precipitating fine impurities and suspended materials because they contain proteins that act as natural coagulants.

Search method

We first brought lemon peel and moringa leaves, dried them, then ground them into small pieces to aid in the purification process. After that, we brought the used washing machine water and then put it in the purification device, where we put the dried lemon in one funnel and the moringa in the other funnel, then we carried out the purification process by pouring the used water into the purification device

We took a sample of water before and after the purification process, where we measured: Salinity, acidity, oxygen, and transparency

Research Questions:

1. How can dried lemon peels and ground moringa be used to purify water?
2. What is the difference between the properties of the two samples in terms of transparency, salinity, acidity, and oxygen?

Results:

	Before the purification process	After the purification process
Salinity	٢,٧٠	٢,٥٠
Acidity	٨,٠٥	٧,١
Transparency	٨٠	١٢٠
Oxygen	١	٦

We noticed from the results that:
Water after purification is better than water before purification in terms of acidity, salinity, transparency and oxygen.
After sending the samples to the Department of Health Affairs in the municipality of Ibri

Water properties	Washing machine water	Water after treatment (purification)
coliform bacteria	٨٠.٥mpn	٠
Salinity	٢١٢	٢٠٤
Acidity	٧,٨	٧,٤

The results confirmed to us that the water after purification became better, as the bacteria before purification were (80.5).
After purification, it was (0), and the salinity in the water also decreased after purification, as the table shows