

# Improvement in the Quality of Water Contaminated with Mercury Through a Filtering Material Made with Mango Seed

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## Abstract

The objective of this research is to produce a paste made with mango seed that has the property of reducing mercury in water. Mercury has become increasingly common due to industrial waste and has a variety of side effects due to its high toxicity. On an industrial level, mango seed is a waste that has no use; however, it contains nutrients such as calcium, zinc, magnesium and other components that could be used otherwise. On the other hand, this part of the fruit forms between 9% and 23% of its constitution. Another important point to take into consideration is that there is a growing tendency to generate organic pastes that fulfill the purpose of filtering due to the non-decreasing need of many communities to have potable water. In order to achieve this, an experimental methodology will be applied where the seed, after going through a process of dehydration, will be screened at 150 microns to filter contaminated solutions of mercury from 10 ppb to 100 ppb. It will also be taken into consideration how this affects the water's pH and the contact time in the decrease of mercury.

## Key words

Organic filter, mercury, mango seed, productivity improvement

## Biographies

**Robertha Rosas** is currently studying the Bachelors in Innovation and Development Engineering with a minor in Neuroscience and Technology. She is currently working in a research project with the objective of exploring and describing the effects of mild traumatic brain injury in Mexican rugby players while doing an internship in the Zambrano Hellion Hospital. She is very interested in sport related acquired brain injury, film making and creative writing.

**Ángel Alberto Castro Casales** is a student at Tec de Monterrey currently studying his 9th semester of Industrial Engineering with a minor in Systems Engineering. He is working as an intern in Mexican Trading Development and Sourcing International, as an intern in engineering focused on production, but also involved in other areas such as finance and product development. He is passionate about exercising, and business administration.

**Alejandra Cantú Ulibarri** is an Industrial Engineering student at TEC de Monterrey. She is currently an analyst at GPC, a financial and strategic growth consulting firm. She is passionate about sustainable development, urbanism, fashion and feminism.

**Francisco Valdés De la Garza** is a student at TEC de Monterrey that is currently completing a major in industrial engineering with a minor in systems. He has working experience in logistics, supply chain management, and consulting projects. He has a passion for project management, modern technology, and music.

**Maricarmen Gutierrez Fraustro** is currently studying her Bachelor's in Innovation and Development Engineering with a minor in Sustainable Development and a concentration in Environmental Management. She is currently doing an internship in the area of Research and development at PepsiCo. Her research interests are sustainability and environmental sciences.

**Francisco Treviño Ordaz** is a student at TEC de Monterrey Campus Monterrey, currently studying his 9th semester of Industrial Engineering. He is working as an intern in an On Campus Job at Tec de Monterrey and is also part of the University Soccer team, playing as a goalkeeper. He is very interested in sports, sustainable development and animal protection.