

**Maria Ylagan Orosa (food technologist, pharmaceutical chemist, inventor)**

**(November 29, 1893- February 13, 1945)**



Maria Ylagan Orosa was a Filipino food technologist, pharmaceutical chemist, and war heroine. She is most famous as the inventor of banana ketchup, a favorite condiment made of bananas. She also invented Soyalac, a nutritious drink made from soybeans and darak (cookies made from rice bran). She also invented the *palayok* oven to enable families without access to electricity to bake.

**Her science journey** began when Maria Ylagan Orosa was born in Taal, Batangas, Philippines on November 29, 1893. She was the fourth of the eight children of Simplicio A. Orosa and Juliana Ylagan Orosa. She went to elementary and high school in Batangas. In 1915, she took a pharmacy course at the University of the Philippines. In 1916, she left for the United States as a government sponsored scholar. She enrolled at the University of Washington and received her BS degree in Pharmaceutical Chemistry in 1917. She also received an additional BS degree in Food Chemistry from the same university in 1918. Furthermore, she received her BS degree in Pharmacy in 1920 and her MS in Pharmacy in 1921. She supported her studies by working as an assistant to Dean Charles Johnson of the University of

Washington. During her summer breaks from college, she worked in fish canneries in Alaska and thus learned about factory canning. After graduation, the State of Washington offered her a job as an assistant chemist, but she declined the offer and returned to the Philippines in 1922.

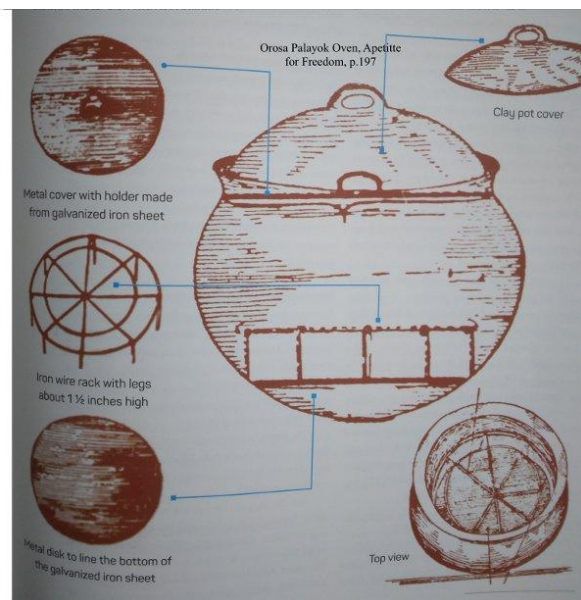
At first, she taught Home Economics at the Centro Escolar University. Then, after one year, she transferred to the Philippine Bureau of Science food preservation division and worked as a chemist. She traveled throughout the country to promote public and private health through a nutrition program. In 1928, the government gave her a scholarship, and she visited other countries such as China, Japan, Britain and the Netherlands to research food technology and preservation. She toured more than 50 canning factories. After she returned to the Philippines in 1929, she became the head of the Food Preservation Division of the Bureau of Science. In 1930, she became the head of the Home Economics Division of the Bureau of Science. In 1933 Maria served as the Head of the Economics Division of the Department of Agriculture and Commerce and established the Homemakers Association of the Philippines.



Maria was an advocate for the Philippines' self-sufficiency in food. She experimented with foods native to the Philippines. She invented

several foods that are still eaten today, including banana ketchup, Soyalac (a nutrient rich soybean powder used for a drink) and darak (a nutritious rice bran powder often

used in cookies). She developed the production of vinegar from pineapple. She also invented the *palayok* oven to enable families without access to electricity to bake. She organized 4-H clubs and traveled to the rural areas to teach women how to raise chickens, preserve local produce, and plan healthy meals.



In December 1941, the Japanese invaded the Philippines. Maria joined the Fil-American Irregular Troops under Brigadier General Agustin Marking. This group became known as Marking Guerillas and was fighting for Philippines freedom. Much like her father who resisted the United States rule after the Spaniards left the Philippines, Maria became an anti-Japanese fighter. She did not fight with guns but did what she knew best. She invented Soyalac and Darak. These were smuggled in hollow bamboo tubes by men pretending to be construction workers. The food would be handed out to the prisoners at the University of Santo Tomas internment camp and the other internment camps at Capas, Tarlac and Corregidor. The soybean and rice bran powders she invented nourished both the fighters and the sick and hungry prisoners of war and saved the lives of many starving imprisoned guerrillas and U.S. soldiers.

As the war raged on, Manila became increasingly dangerous. Her family asked Maria to go back to their home in Batangas. Maria refused to leave. She said she could not abandon her work; of course, the food she snuck in to the prisoners was crucial to the prisoners' maintaining their strength.

When American forces arrived to fight the Japanese, they bombed Manila. On February 13, 1945, Maria's laboratory at the Bureau of Plant Industry building was struck by one of those bombs. She was taken to the Malate Remedios Hospital for treatment. While she was there, however, the hospital was hit by another bomb, and she died. She was buried in a mass grave with other war victims. In 2020, a gravestone with her name on it was found in the yard of the Malate Catholic School. At the bottom were the words "Died in the line of duty". Maria's remains were reinterred in the crypt of San Agustin Church in Intramuros as part of commemorations for the 80<sup>th</sup> anniversary of the Battle of Manila on February 13, 2025.

## **HER LEGACY**

Maria Orosa would forever be known as the woman who invented banana ketchup. But she is more than that. She invented many more foods from native Filipino ingredients because she wanted the Philippines to become self-sufficient.

She invented Soyalac and Darak.

She invented the *palayok* oven to enable families without access to electricity to bake.

She organized 4-H clubs and traveled into the rural areas to teach women how to raise chickens, preserve local produce, and plan health meals.

She was a captain in Marking's Guerillas and helped provide food for the prisoners during the Japanese occupation of Manila.

She invented a process for canning goods for the guerilla warriors fighting the war. Without the food she sneaked to those prisoners, thousands of people would have died in internment camps, hospitals, and on the streets.

Maria Y. Orosa Street in Manila was named after her.



The American Red Cross gave her a humanitarian award posthumously for her food smuggling efforts.



A monument in her honor was erected in Laurel Park, Batangas Provincial Capitol Complex on November 29, 2018, in honor of her 125<sup>th</sup> birthday.

The Philippine Government presented her with a Presidential Medal of Merit posthumously on February 20, 2025.



A National Historical Commission of the Philippines (NHCP) marker was placed at the Bureau of Plant Industry on November 29, 1983, in honor of her 90<sup>th</sup> birthday.

On June 1, 1993 for the centennial of her birth anniversary, the Philippine Postal Corporation issued a postage stamp in her honor.



On November 29, 2019 on Maria's 126<sup>th</sup> birthday, Google honored her with a doodle.



## HER SCIENCE JOURNEY

1893 - Maria Ylagan Orosa was born on November 29 in Taal, Batangas, Philippines

1915 - Attended college at the University of the Philippines

1916 - Moved to the United States to attend college as a partial scholar at the University of Washington in Seattle, Washington

1917 - Received her BS in Pharmaceutical Chemistry from the University of Washington

1918 - Received her BS in Food Chemistry from the University of Washington

1920 - Received her BS in Pharmacy from the University of Washington

1921 - Received her MS in Pharmacy from the University of Washington

1922 - Maria returned to the Philippines

- Taught Home Economics at Centro Escolar University

1923 - Transferred to the Bureau of Science and worked as a chemist. She helped organize the food preservation division under the Bureau of Science.

1928 - The government gave her a scholarship, and she toured different countries to learn more about food technology and preservation

1929 - She was appointed head of the home economics division of the Bureau of Science

1933 - Became head of the food preservation division of the Bureau of Science in January. In May, she became the head of the economic division of the Department of Agriculture and Commerce and established the Homemakers Association of the Philippines

1941 - Invented *soyalac* and *darak* and smuggled food to prisoners of war at the internment camps at the University of Santo Tomas, Capas, Tarlac and Corregidor

1945 - Maria's laboratory was bombed by American forces and she died at the Malate Remedios Hospital

1983 - A National Historical Commission of the Philippines (NHCP) marker was placed at the Bureau of Plant Industry on November 29 to honor her 90<sup>th</sup> birthday

1993 - For the centennial of her birth anniversary, the Philippine Postal Corporation issued a postage stamp in her honor.

2018 - A monument in her honor was erected in Laurel Park, Batangas Provincial Capitol Complex on November 29 in honor of her 125<sup>th</sup> birthday.

2019 - Google made a doodle to honor her 126<sup>th</sup> birthday

2020 - A gravestone with her name was found at the Malate Catholic School

2025 - Maria's remains were reinterred in the crypt of San Agustin Church in Intramuros as part of commemorations for the 80<sup>th</sup> anniversary of the Battle of Manila on February 13

2025 - The Philippine Government presented her with a Presidential Medal of Merit on February 20

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The photos and some of the information were taken from these websites:

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