



Food Safety R&D in the Academe



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ASEAN Science and Technology Fellow 2019/20
ASEAN Foundation and USAID

Outline

- × Food safety: Description
- × Food safety in Microbiology
- × Notable researches and papers in Food Safety
- × Careers in Food Safety research/academe
- × Perks of being in the Food Safety field

What is food safety?



Food Safety

- The handling, preparing and storage of food products the best way possible to reduce the risk of contracting foodborne illnesses.
- A joint effort starting from the handler, preparer, and consumer to ensure the implementation of practices for food safety.



4 STEPS TO FOOD SAFETY



CLEAN



SEPARATE



COOK



CHILL



World Food Safety Day

- Yearly event that started 2019 and was celebrated this June 7, 2020
- WHO uses this event to promote food safety to the public and reduce the number of illnesses that is caused by foodborne illnesses globally

Unsafe food affects us all, particularly vulnerable populations



Did you know an estimated **600 million** people around the world – almost **1 in 10** – fall ill after eating contaminated food and **420 000** die every year?



40% of the foodborne disease burden is on children under **5 years** of age

During a time of crisis, access to safe and healthy food is more at risk than at any other time. While food is not known to transmit COVID-19, food purchasing can be made safer with the following tips:



keep a physical distance (of at least 1m) between you and others while shopping



make sure your local food sellers are washing and sanitizing all surfaces used for food preparation and practicing good hand hygiene



ensure your hands are clean and when you get home wash your hands with soap and water before handling food



wash fruits and vegetables with water particularly if you are eating them raw

Together we can team up for food safety!

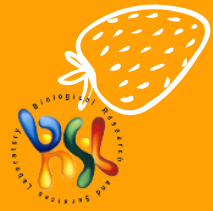
Food safety, everyone's business

#WorldFoodSafetyDay

Share your food safety day – to empower food safety day

RA 10611 or the Food Safety Act of 2013

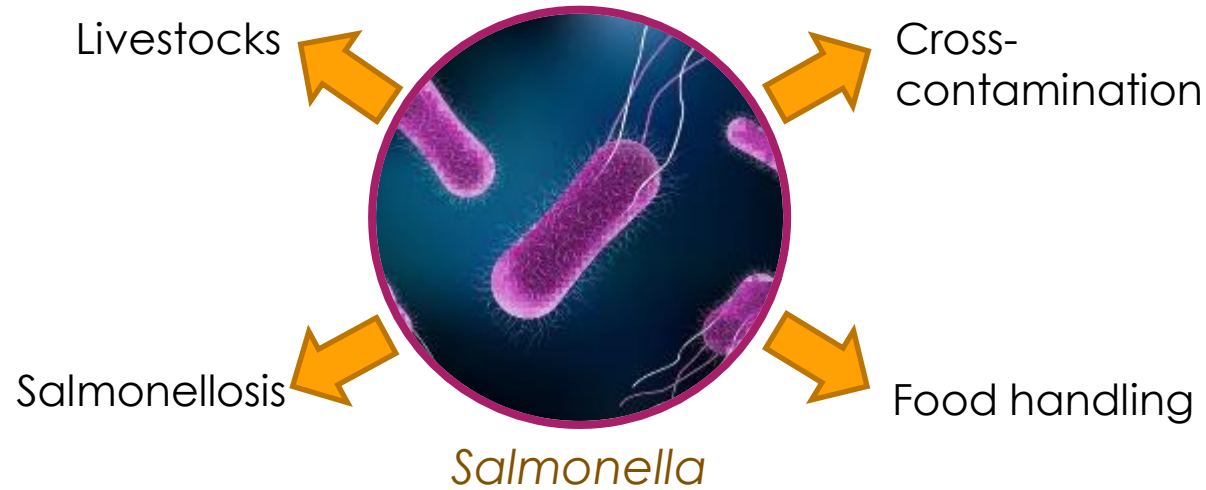
An Act To Strengthen The Food Safety Regulatory
System In the Country To Protect Consumer Health And
Facilitate Market Access Of Local Foods And Food
Products, And For Other Purposes.



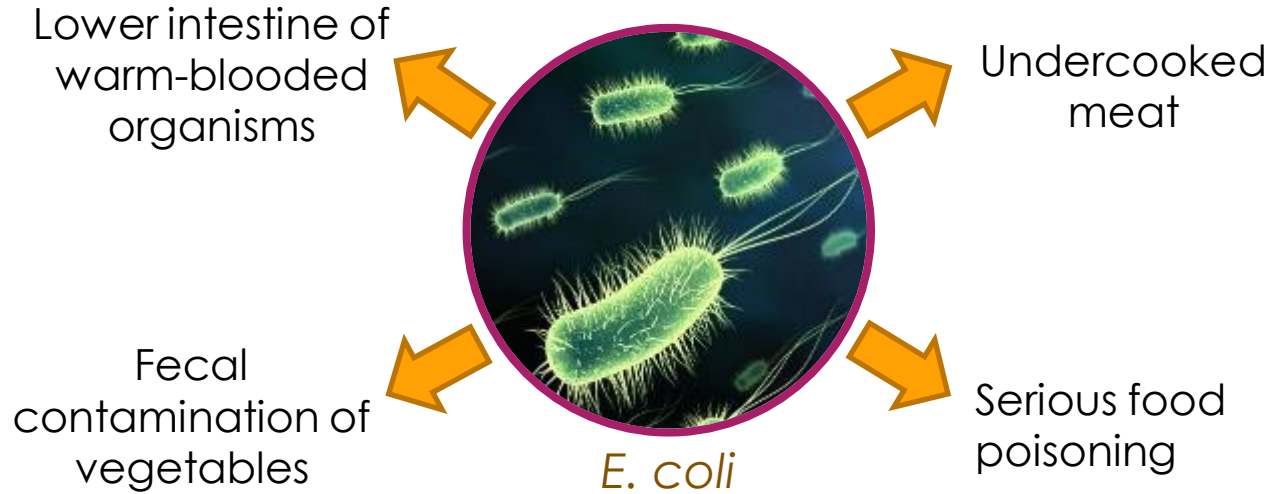
National Government Agencies



Challenges in Food Safety



Challenges in Food Safety



Challenges in Food Safety



10 dead in diarrhea outbreak in S. Philippines

Source:Xinhua Published: 2018/2/20 10:52:31

The Broader Look

Salmonella summons PHL farm sector's strength

By **Jasper Y. Arcalas** - August 9, 2017



HERDIN

Health Research and Development Information Network

Herdin Record #: PCHRDPC951028

Salmonella food poisoning in Benguet.

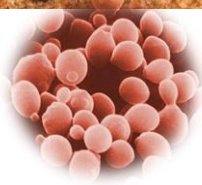
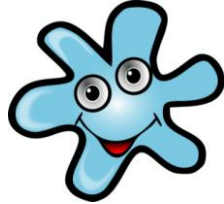
Researchers

Name	Role
¹ Janice B. Zabala	Author
² David A. Mendoza	Author
³ Florence Caput	Author
⁴ Ma. Concepcion Roces	Author
⁵ Mark E. White	Author
⁶ Manuel M. Dayrit	Author

Food safety in Microbiology

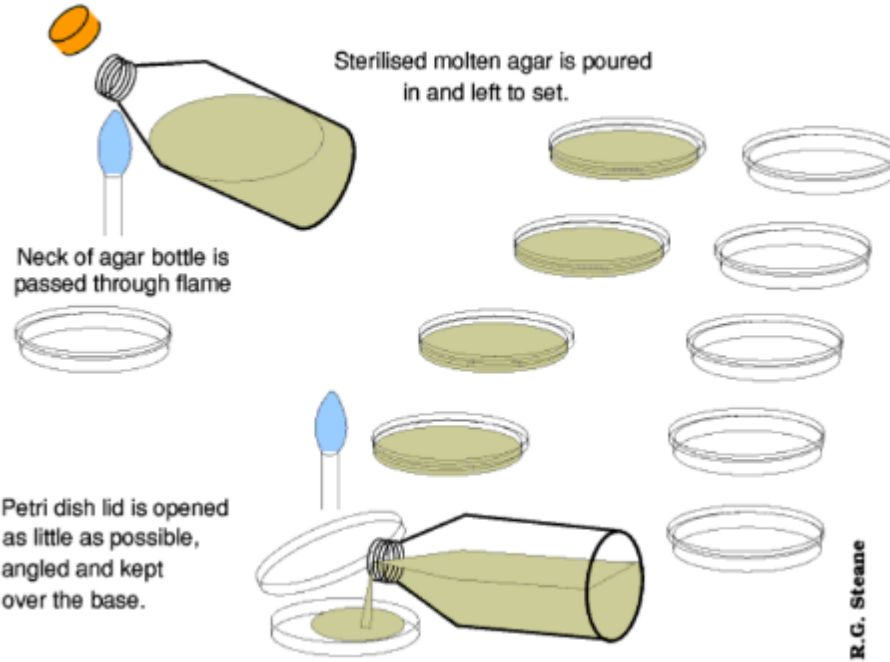


Food Safety in Microbiology



Techniques in Microbiology

"Pouring a Plate"

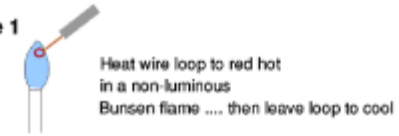


Each Petri dish holds about 20 ml, so 200ml will do for 10.

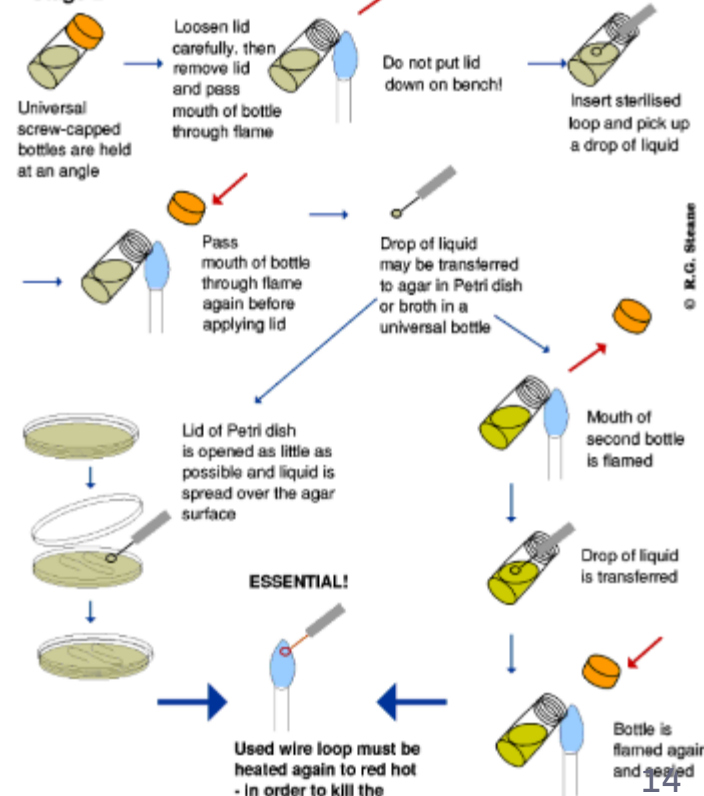
INOCULATION

If using a broth culture or other liquid source

Stage 1



Stage 2



Researches and Publications on Food Safety



Fresh Produce



**Consumption of
contaminated
vegetables**



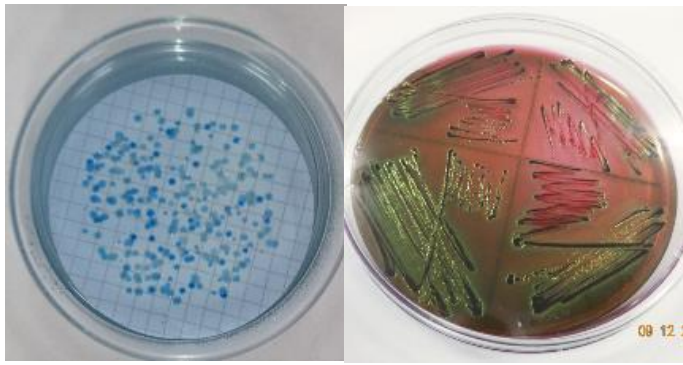
**Outbreaks due to
pathogenic
microorganisms**

Hindawi Publishing Corporation
The Scientific World Journal
Volume 2014, Article ID 219534, 7 pages
<http://dx.doi.org/10.1155/2014/219534>

Research Article

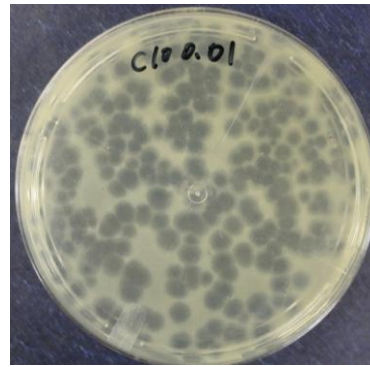
Microbiological Quality of Fresh Produce from Open Air Markets and Supermarkets in the Philippines

Pierangeli G. Vital,^{1,2} Kris Genelyn B. Dimasuay,^{1,2} Kenneth W. Widmer,³ and Windell L. Rivera^{1,2}



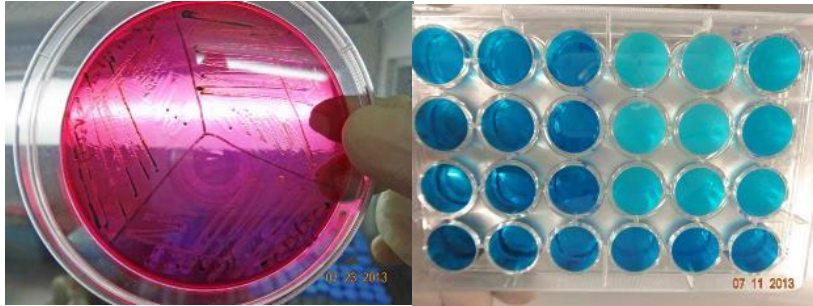
Significant Findings

E. coli in m-FC and eosin methylene blue agar plates isolated from produce.



Significant Findings

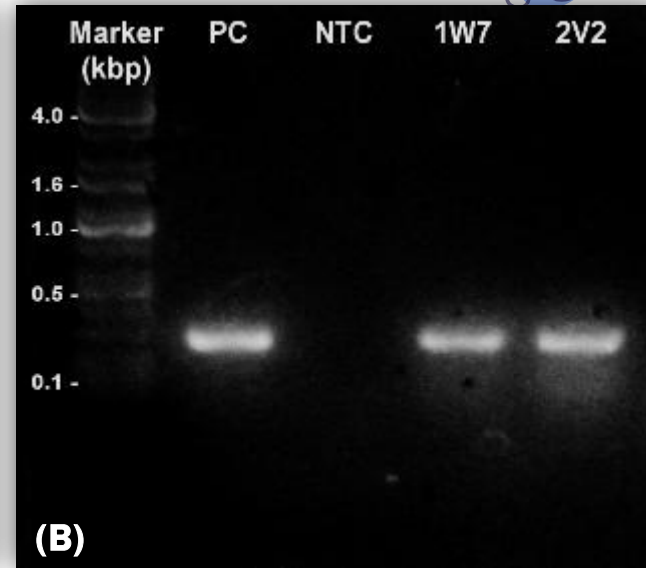
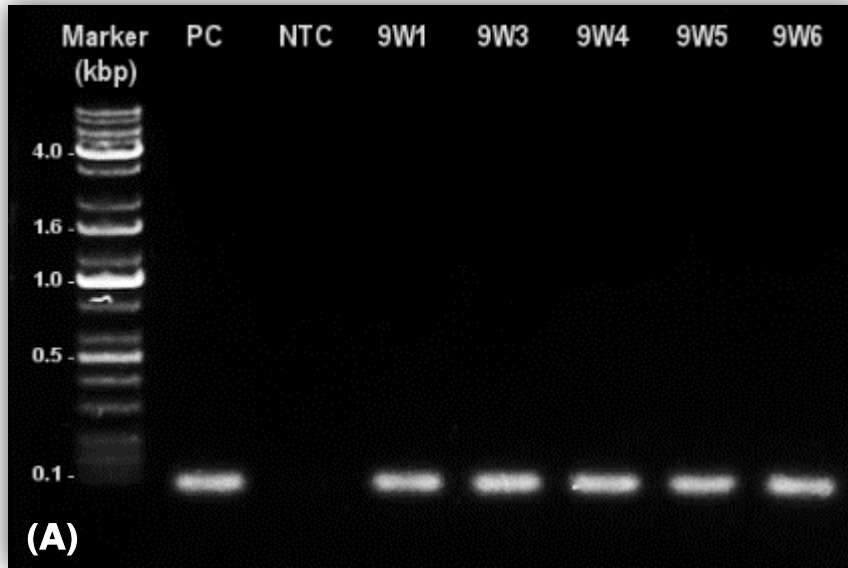
Somatic phages in TSA plates isolated from produce.



Significant Findings

Salmonella in XLD agar and RV broth isolated from produce.



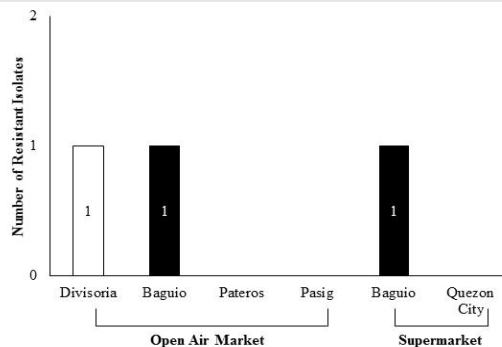
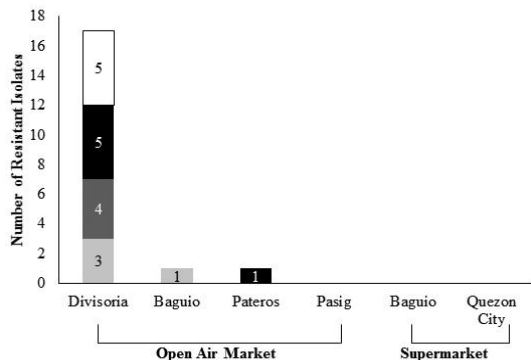


Significant Findings

- × AGE showing the (A) 75-bp fragment of the *E. coli uidA* gene and the (B) 284-bp fragment of the *Salmonella* spp. *invA* gene.

Antimicrobial resistance in *Escherichia coli* and *Salmonella* spp. isolates from fresh produce and the impact to food safety

Pierangeli G. Vital, Marie Bernadine D. Caballes & Windell L. Rivera



Significant Findings


Antibiotic resistant *Salmonella* spp. and *E. coli* isolates from 410 fresh produce surveyed from open air markets and supermarkets.

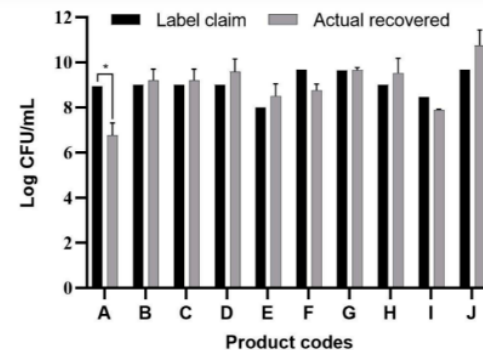
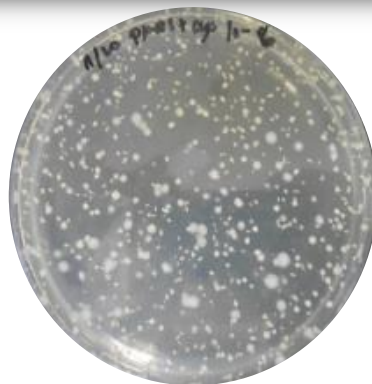
Probiotics



Article

Do Your Kids Get What You Paid for? Evaluation of Commercially Available Probiotic Products Intended for Children in the Republic of the Philippines and the Republic of Korea

Clarizza May Dioso ^{1,2}, Pierangeli Vital ³, Karina Arellano ², Haryung Park ^{2,4}, Svetoslav Dimitrov Todorov ², Yosep Ji ⁴ and Wilhelm Holzapfel ^{2,4,*} 



Significant Findings

Determination of viable counts and taxonomic identification of the bacterial species present in each probiotic products intended for children in PH and SK.

Aquatic Food Safety

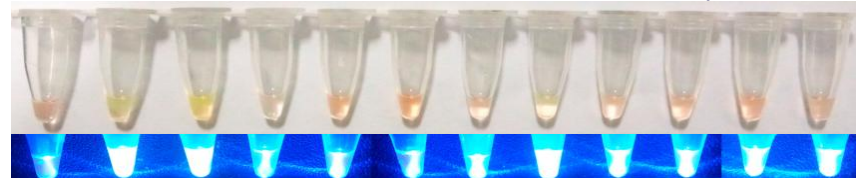


ARTICLE

Detection of *Vibrio parahaemolyticus* in fish samples from selected wet markets in Laguna, Philippines, using loop-mediated isothermal amplification (LAMP) and real-time polymerase chain reaction (qPCR)

Treena Rica D. Teh¹, Joy Ann P. Santos², Mylene G. Cayetano³, and Pierangeli G. Vital²

Significant Findings
× Detection Kits



A person's hands are visible, holding a wooden cutting board. On the board are various ingredients for a sandwich: a slice of lettuce, a slice of tomato, a slice of white onion, a slice of cheese, and two halves of a bread roll. A white rectangular box with a black border is superimposed over the center of the image, containing the text.

Why pursue Microbial Food Safety
in the academe as your career?

- 
- ✕ **Food safety has a huge impact in public health and economy.**
 - ✕ **Establish policies on food safety.**
 - ✕ **Food security.**
 - ✕ **Develop tools or kits in detection of foodborne pathogens.**
 - ✕ **Profitable career choice.**

BE A TEACHER!



FOOD SCIENCE PH

Saving the World Through Food Microbiology

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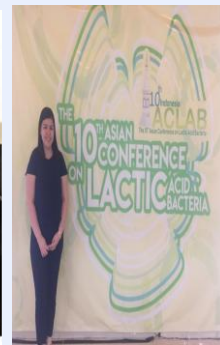
**IN COLLABORATION WITH
SCIENCE OF FOOD**

<https://foodscienceph.com/wp-content/uploads/2020/06/Copy-of-Fresh-Oranges-Summer-Party-YouTube-Thumbnail.png>

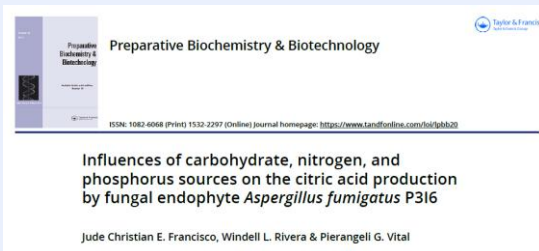
BE A RESEARCHER!



Photo credit: Teddy Mananala



PAPER PRESENTATIONS



Microbiological assessment of fresh, minimally processed vegetables from open air markets and supermarkets in Luzon, Philippines, for food safety

Pierangeli G. Vital, Windell L. Rivera, Joseth Jermaine M. Abello & Jude Christian E. Francisco

PUBLISHED PAPERS



WORKSHOPS

AND A SCIENTIST!



Biological Research and Services Laboratory

☎ 8925-2961 or 8981-8500 (loc. 3604)

✉ brsl_nsri.upd@up.edu.ph

📍 P. Velasquez St. Miranda Hall, Natural Sciences Research Institute, University of the Philippines Diliman, Quezon City 1101

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OR A FELLOW!



PHILIPPINES

**DR. PIERANGELI
G. VITAL**

HOST INSTITUTION

Philippine Council for Industry,
Energy & Emerging Technology
Research & Development

EXPERTISE

Environmental Microbiology,
Microbial Food Safety

OUTPUTS

Policy advocacies for food safety and
Laguna Lake Development Authority
projects and programmes





**Meeting with Supervisor
in host ministry**



**Meeting with Mentor and
Co-fellow in host ministry**



**ASEAN S&T Fellowship
Orientation and Capacity
Building Workshops**



**Effective Science
Communication Workshop**

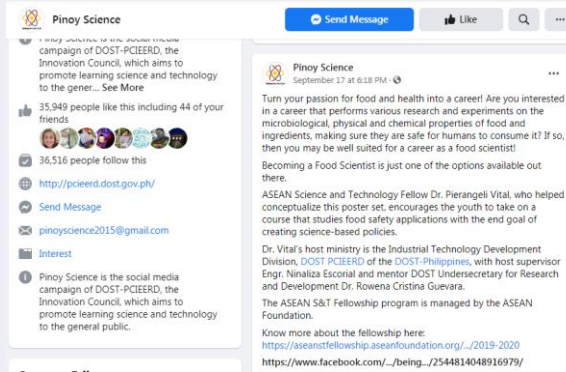
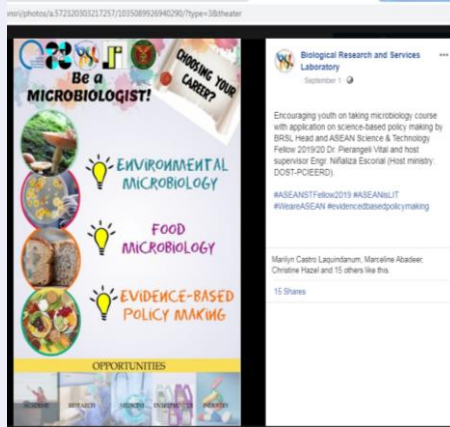


76th ASEAN COSTI meeting



**ASEAN Emerging
Researchers Conference**

AN INFLUENCER OR MENTOR!



SOCIAL MEDIA POSTS



MENTORING PROGRAM

As Part of PROFESSIONAL ORGANIZATION!



Young Ambassador



Treasurer



Corresponding Secretary



Business Manager





Photo credit: Teddy Manansala

Conferment as PAM Diplomate



PSYSC Ambassador for Environment Award



2020 Outstanding ASEAN Science Diplomat (Feature in UP Diliman website)



Feature in Pinoy Scientists website

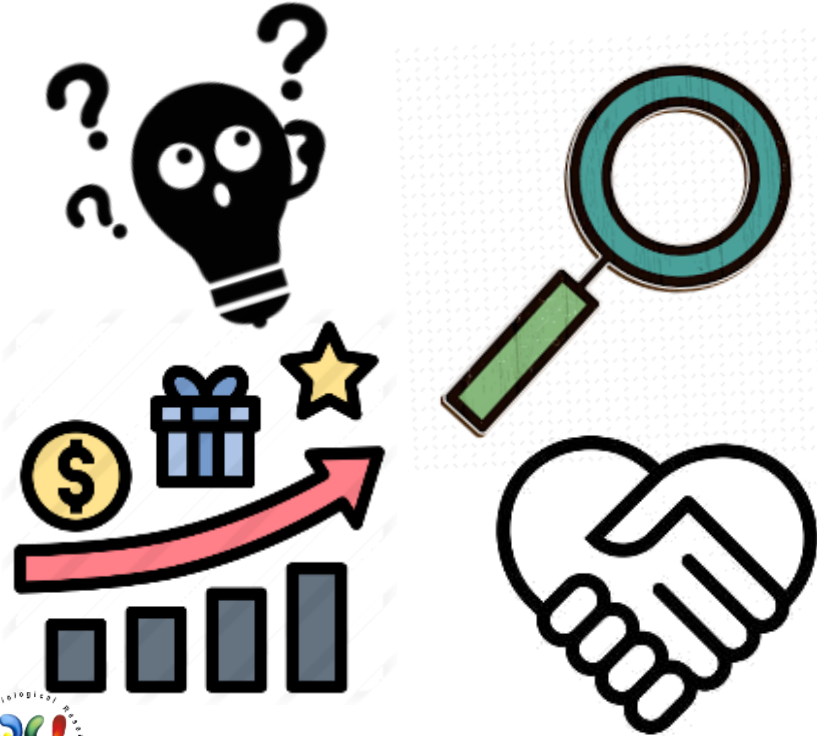


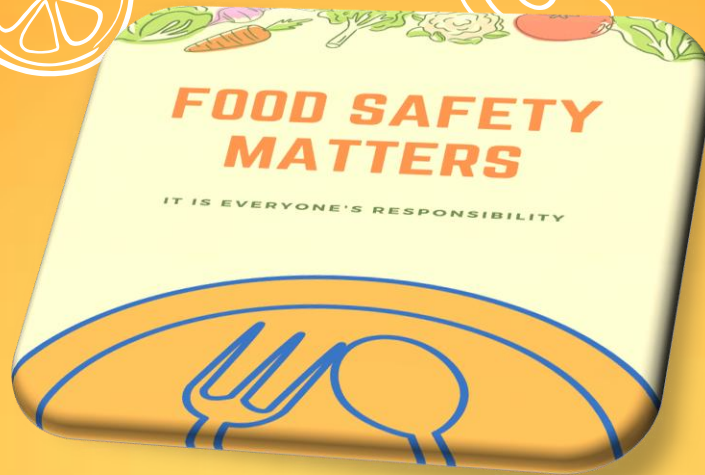
NAST Talent Search for Young Scientists



Feature in Philippine Commission on Women

Perks of Being in the Microbial Food Safety Field







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