



Traditional Myanmar Foods with Potential Functional Values

Emphasis on **Laphet**: Fermented Tea Leaves

Dr. Bo Bo

Food Technology Center

Naypyitaw Technological University, Myanmar

Contents

- 1) Food Technological Center (Naypyitaw Technological University)
- 2) Laphet: Fermented Tea Leaves
- 3) Other Popular Myanmar Fermented Foods
- 4) Research Necessities of Myanmar Traditional Foods

Food Technological Center
(Naypyitaw Technological University)

Food Technology Center, Naypyitaw Technological University

Ministry of Science and Technology, Myanmar

Department of Advanced Science and Technology

Naypyitaw Technological University

Food Technology Center

(established in July 2022)

1. To provide food analysis services
2. To give food technology related consultation to MSMEs
3. To provide academic education related to food technology



Research facilities



6 laboratories

1. Food Analysis Lab
2. Food Microbiology Lab
3. Food Chemistry Lab
4. Food Physics and Engineering Lab
5. Food Processing Lab
6. Food Safety Lab



Gas Chromatography- Mass Spectrometer
Brand Name- PerkinElmer
Model- Clarus 690 & Clarus SQ8T



UV-Vis Spectrophotometer
Brand Name- PerkinElmer
Model- Lambda 265



ICP-OES
Brand Name- PerkinElmer
Model- AVIO-200



Floor-standing OES
Brand Name- Hitachi
Model- Foundry-Master Pro2



Texture analyzer

Our Research Team



Name	Designation	Education
Dr. Bo Bo	Director	Ph.D (Food Science and Technology)
Dr. Theint Theint Win	Director	Ph.D (Environmental Biotechnology)
Tin Nway Nway Hlaing	Assistant Lecturer	ME(Chemical Engineering)
La Woon Thawtar	Assistant Lecturer	BE (Chemical Engineering)
Ei Phyo Aung	Assistant Lecturer	BE (Chemical Engineering)
Khin Ju Han	Assistant Lecturer	BE (Chemical Engineering)
Zin Moh Moh Myint	Assistant Lecturer	BE (Chemical Engineering)
Kay Thwe Moe	Assistant Lecturer	BE (Chemical Engineering)

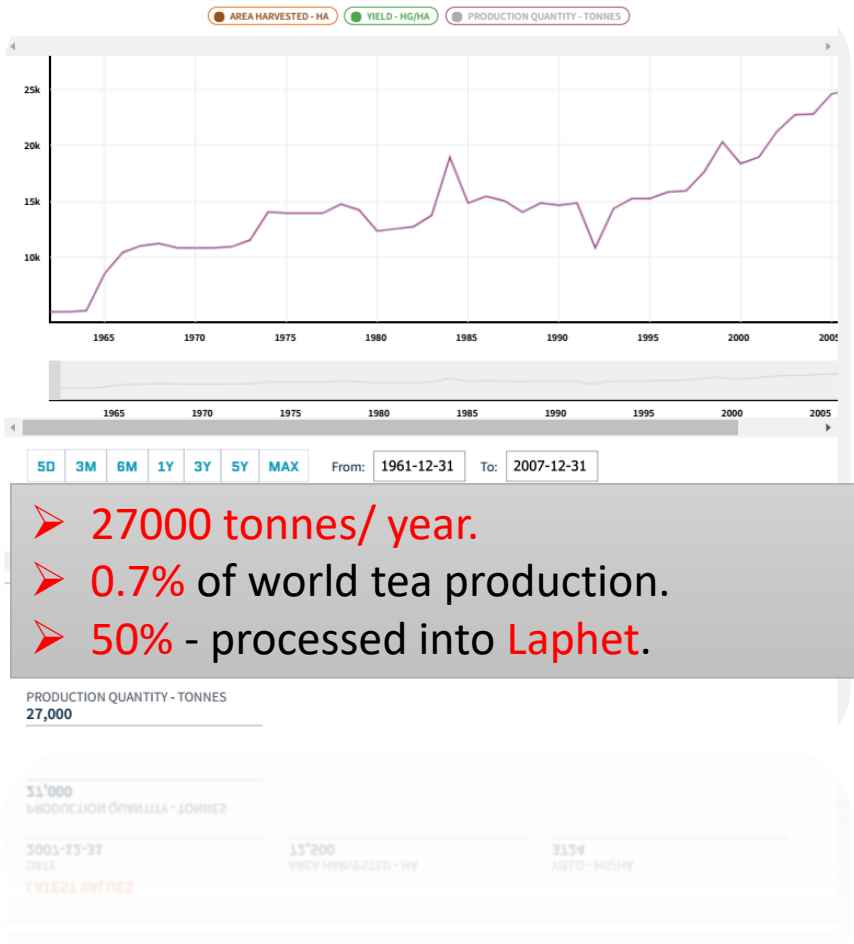
Laphet: Fermented Tea Leaves

Tea Plantation and Production in Myanmar

Plantation



Production



Laphet: Fermented Tea Leaves

What



- ❖ Laphet is name of tea eaten in Myanmar.
- ❖ Tea leaves are fermented in clay pots or plastic bag to make Laphet.

Where



- ❖ It is mainly made in shan state.
- ❖ It is found in most of markets and shops.

How



With vegetables

Two types of eating style



Without vegetables

Processing of Laphet

Harvesting



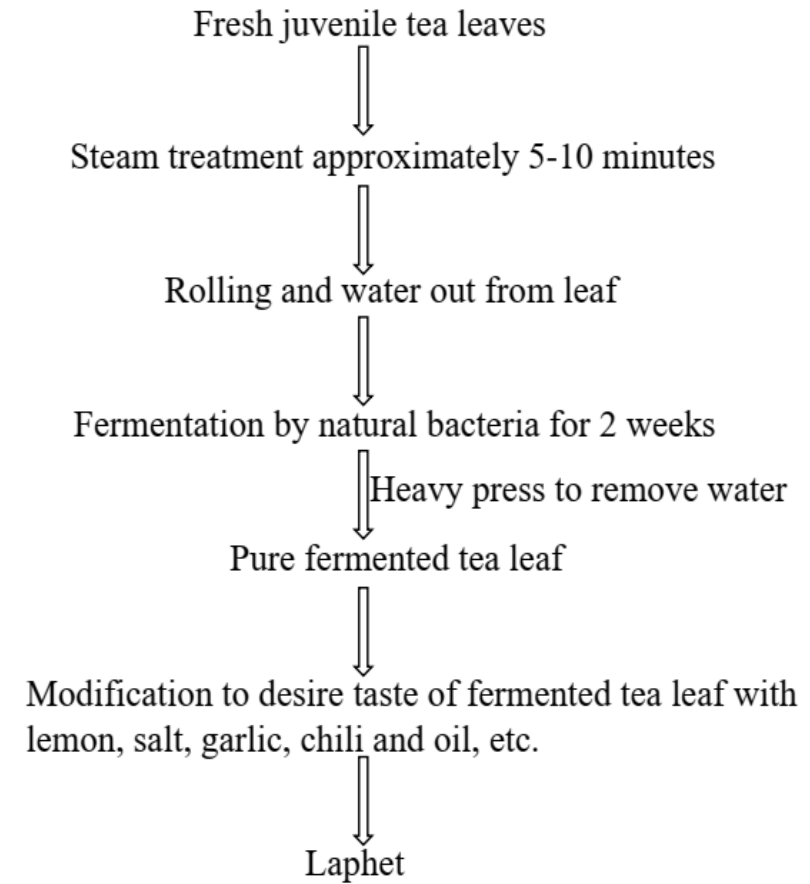
Steaming



Steaming



**Selection,
Rolling**



(Han *et al.*, 2015)

Laphet and Myanmar Culture



- Offer betel, tobacco and Laphet- **hospitality and welcome**

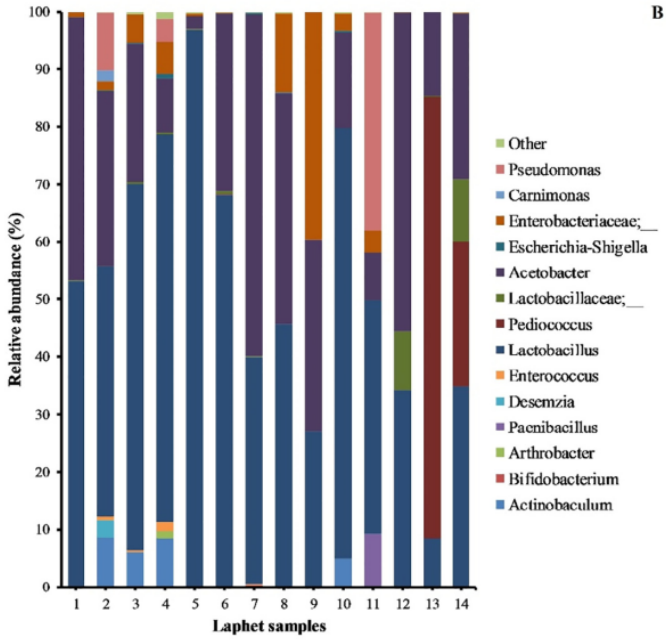


- No party, feast, festival, wedding ceremony- **without Laphet**

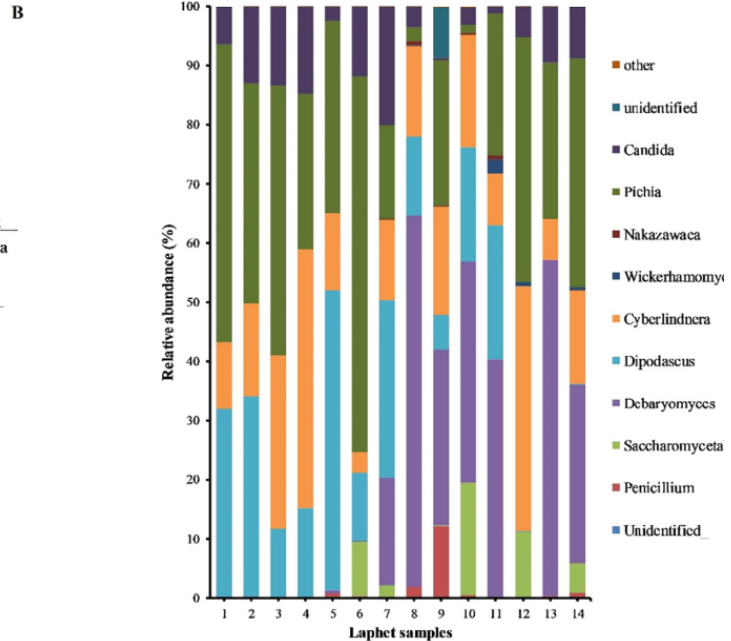


- Important in Myanmar **culture and society**

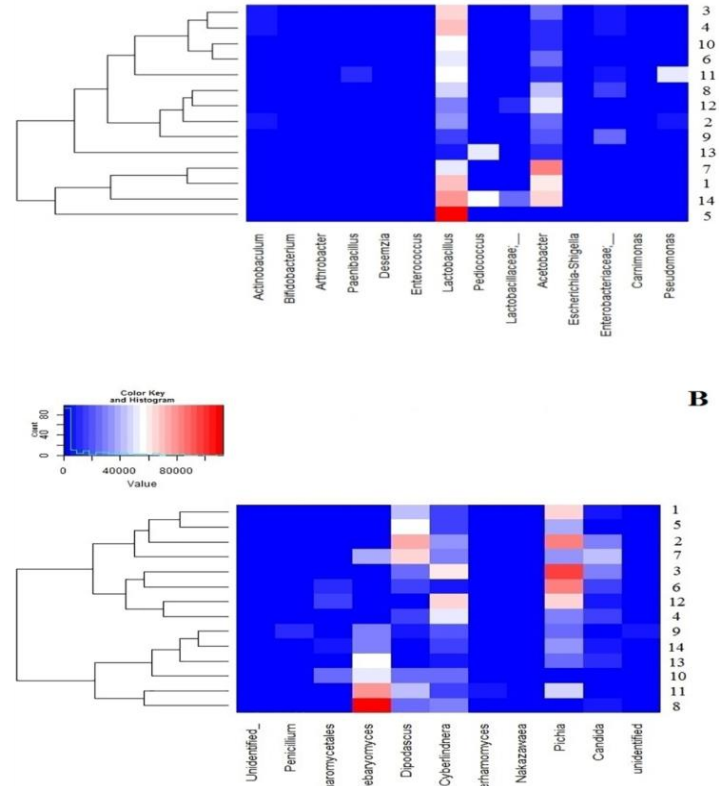
Microbial Community in Laphet



Bacterial Diversity

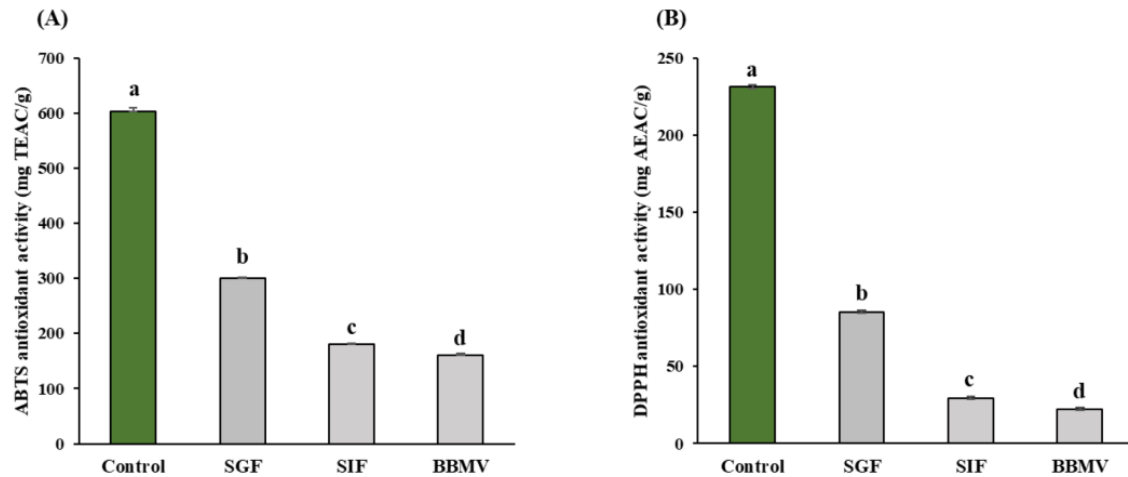


Fungal Diversity

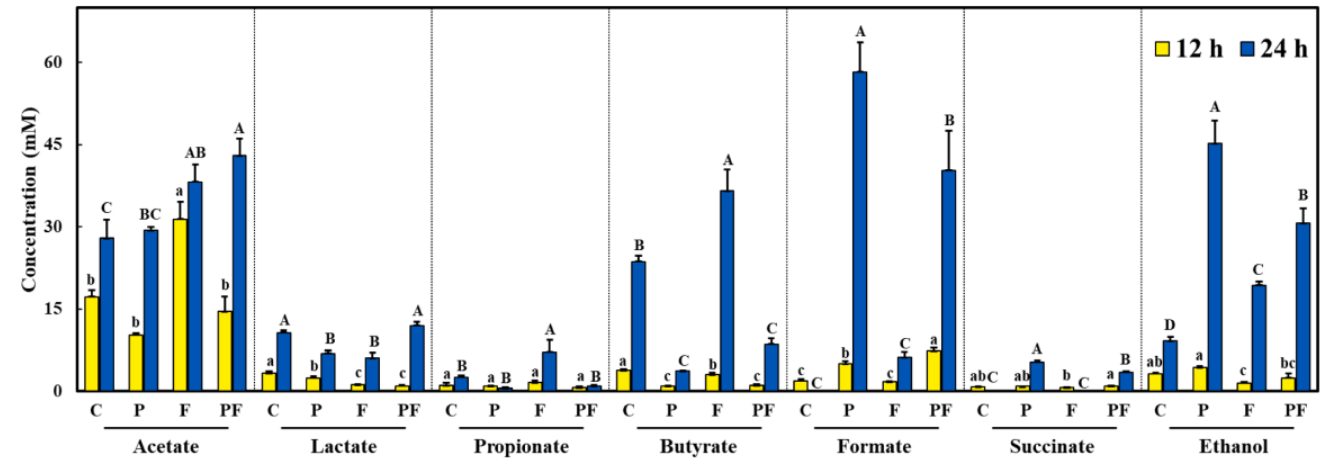


- ❖ Microbial diversity in Laphet is unique.
- ❖ Lactic acid bacteria are abundant in Laphet

Antioxidant and prebiotic activities of Laphet



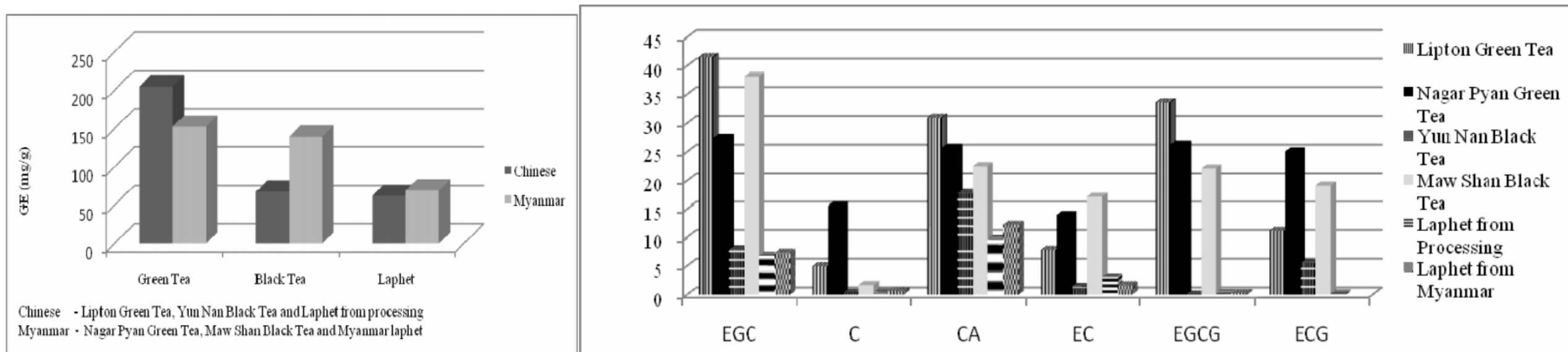
Antioxidant activity of Laphet during *in vitro* digestion



Short Chain Fatty Acid (SCFA) production during *in vitro* fermentation of Laphet

- ❖ Polyphenol bioaccessibility and antioxidant activity during *in vitro* digestion
- ❖ Favored growth of beneficial bacteria and suppressed harmful bacteria and increased SCFA production

Polyphenol and catechin in Laphet



Polyphenol and catechin content in Laphet in comparison with other different tea

Due to the fermentation, polyphenol and catechin content in Laphet was lower than other tea. But it still contain those beneficial phytochemical compounds.

Other Popular Myanmar Fermented Foods

Some other popular fermented foods



Fermented radish



Fermented green gram sprout



Fermented groundnut oil cake



⁴
Fermented *Capparis flavicans* Wall fruit



¹
Fermented *Crateva religiosa* leaves



⁶
Fermented calabash fruit.

Six popular fermented food of Myanmar

Bacterial isolates	Growth on 3% NaCl	Growth on 5% NaCl	Growth on 7% NaCl	Growth at 4°C	Growth at 37°C	Growth at 45°C	Motility	Catalase	Gram reaction	Microscopic morphology	Sequencing and identification	Source
DBR-F4	+	+	-	+	+	-	Non motile	negative	positive	rod	<i>Lactobacillus helveticus</i>	Fermented radish
DBR-F6	+	+	+	+	+	+	Non motile	negative	positive	rod	<i>Lactobacillus helveticus</i>	Fermented groundnut oil cake
DBR-F10	+	+	+	+	+	+	Non motile	negative	positive	cocci	<i>Leuconostoc lactis</i>	Fermented Green Gram Sprout
DBR-F11	+	+	+	+	+	-	Non motile	negative	positive	cocci	<i>Leuconostoc lactis</i>	Fermented radish
DBR-F16	+	+	+	+	+	+	Non motile	negative	positive	rod	<i>Leuconostoc mesenteroides</i>	Fermented <i>Crateva religiosa</i> leaves
DBR-F25	+	+	+	-	+	-	Non motile	negative	positive	rod	<i>Lactobacillus helveticus</i>	Fermented <i>Capparis flavicans</i> Wall

(+) means growth and (-) means no growth.

There are six potential probiotic lactic acid bacteria isolated from Myanmar fermented foods.

Research Necessities of Myanmar Traditional Foods

1. **The processing of traditional foods** should be improved to ensure food safety and quality.
2. **Storage and post processing related issues** should also be solved.
3. **Their functional properties** are still to confirm scientifically.

Thank you very much for your attentions!

Email: bobo3ster@gmail.com

Phone: +959778336383