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Potency of Stingless Bee (*Homotrigona fimbriata*) Honey as anti Cancer *

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Forest
Chemis  tree

Outline:

- 1. Introduction**
- 2. Forest Potency in East Kalimantan**
- 3. Stingless Bee**
- 4. Conclusion**

1. Introduction



10% of the world's Plants
>400 of dipterocarps
25,000 flowering plants
(www.aseanbiodiversity.org &
www.researchgate.com)

Indonesia is one of the
world's top biodiversity
rich countries
(www.fauna-flora.org)

17,000 islands

12% of the world's mammal
16% of the world's reptiles
and amphibians,

10% of the world's insect

17% of the world's birds

25% of global fish
populations (www.fauna-flora.org)



Utilization of Tropical Resources for Cosmetic and Drug

Product



“Bedak dingin” with Dayak Herbs extracts for cosmetic (Lab Product and sell in Campus)

Cosmetic product from extracts of agriculture/forest plant with PT. Martina Berto or other Companies



“Teh Mangar” Herbs tea (KPHP Berau Barat Product) & “Teh Tahongai” (CV. Abihira Herbal Centre Product)

In vivo

Dayak Herbs extracts formulation for cosmetic in human skin with PT. Martina Berto

Agriculture extracts formulation for cosmetic in human skin with PT. Martina Berto

Extracts of agriculture/forest Formulation and test in human skin for cosmetic & drug

In vitro

Mechanism of active compounds/crude extracts for cosmetic

Isolation active compounds for cosmetic and drug

Screening edible herbs plant for cosmetic and drug

Screening Mangrove Forest plant for cosmetic & drug

Screening Stingless bee Propolis for cosmetic and drug

Screening Dayak Herbs for cosmetic & drug

Screening agricultur/forest products for cosmetic & drug

Screening Fruits from woody plant for cosmetic & drug

2010-2012

2012-2015

2015-2017

2017-2020

2020-2022

2022-2025

2025-2030

2030 -2043.

The use of Forestry Biodiversity ??????

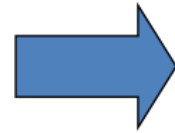


**Added value of Non Timber Forest
Product (Stingless Bee Product)**



**Increase economic value and welfare
of People near forest**

Plant for human



**Traditional
Medicine**



Jamu



Jamu



Health

Beauty

2. Forest Potency in East Kalimantan

Natural source of Medicine (Global)



- 1.** About 35,000-70,000 of 2,500,000 species traditionally use and available in markets globally (Gettkant & Schafer, 2003 dan Mukerji 1997)
- 2.** 50% of drug from natural resources (Gurib-Hakim, 2006)
- 3.** 80% world population in developing countries depend on traditional medicine in daily life (WHO, 2002)

Food source



Artocarpus sp
(Pepuan)



Nephelium sp



Lansium sp



Durio sp



Kapul (Bauccarea
sp)



Keramu
(Dacryodes sp)



Ihau (Dimocarpus
sp)



unknown



Kesturi



Ramania



Rambai



Kapul (Bauccarea
sp)



Kapul (Bauccarea
edulis)



Kuranji (Dialium
sp)



Artocarpus
odoratimus(kiran)



Maritam (Nephelium
mutabile)



Gitaan



Asam payang
(Mangipera pajang)



Salak hutan
(Salacca conferta)



Kapul (Baccaurea
macrocarpa)

**Local and
exotic
fruit ???**

Medicine source



Pasak bumi
(*Eurycoma longifolia*)
Nature Viagra



Ketikokng
(*Arcangelisia flava*)
Malaria and liver

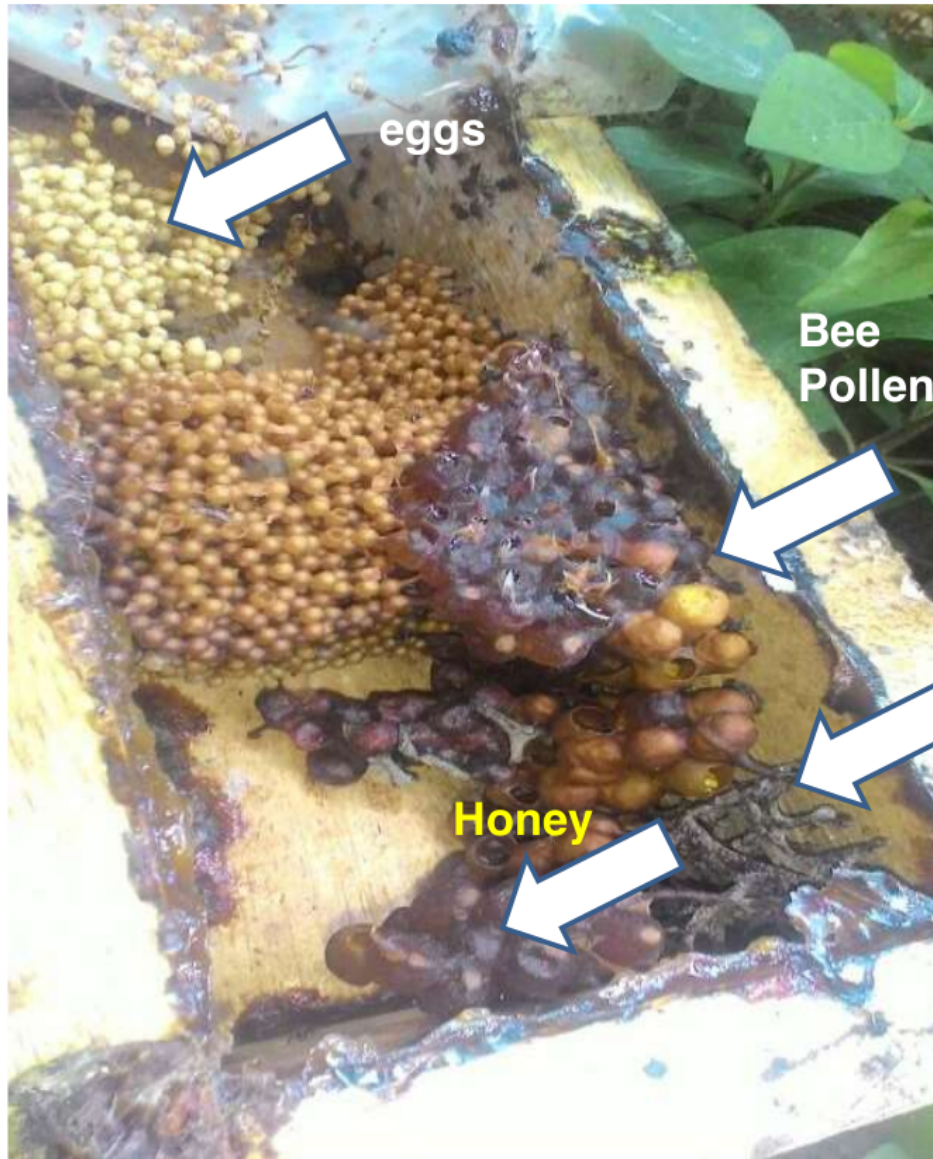


Lasat/Langsat
(*Lansium domesticum*)
Malaria

3. Stingless Bee



Fig 1. Stingless Bee (Left) and normal Bee (Righth) [Source www.google.com]



Stingless Bee Products

Propolis

The taste of Honey :
sweet, sour, and bitter
(mix)

Selling Honey in the Forest [Soeharto National Park (Betwen Samarinda and Balikpapan)]





**Current project :
Stingless bee in
east Kalimantan**

Tarakan

Sanggata

Bontang

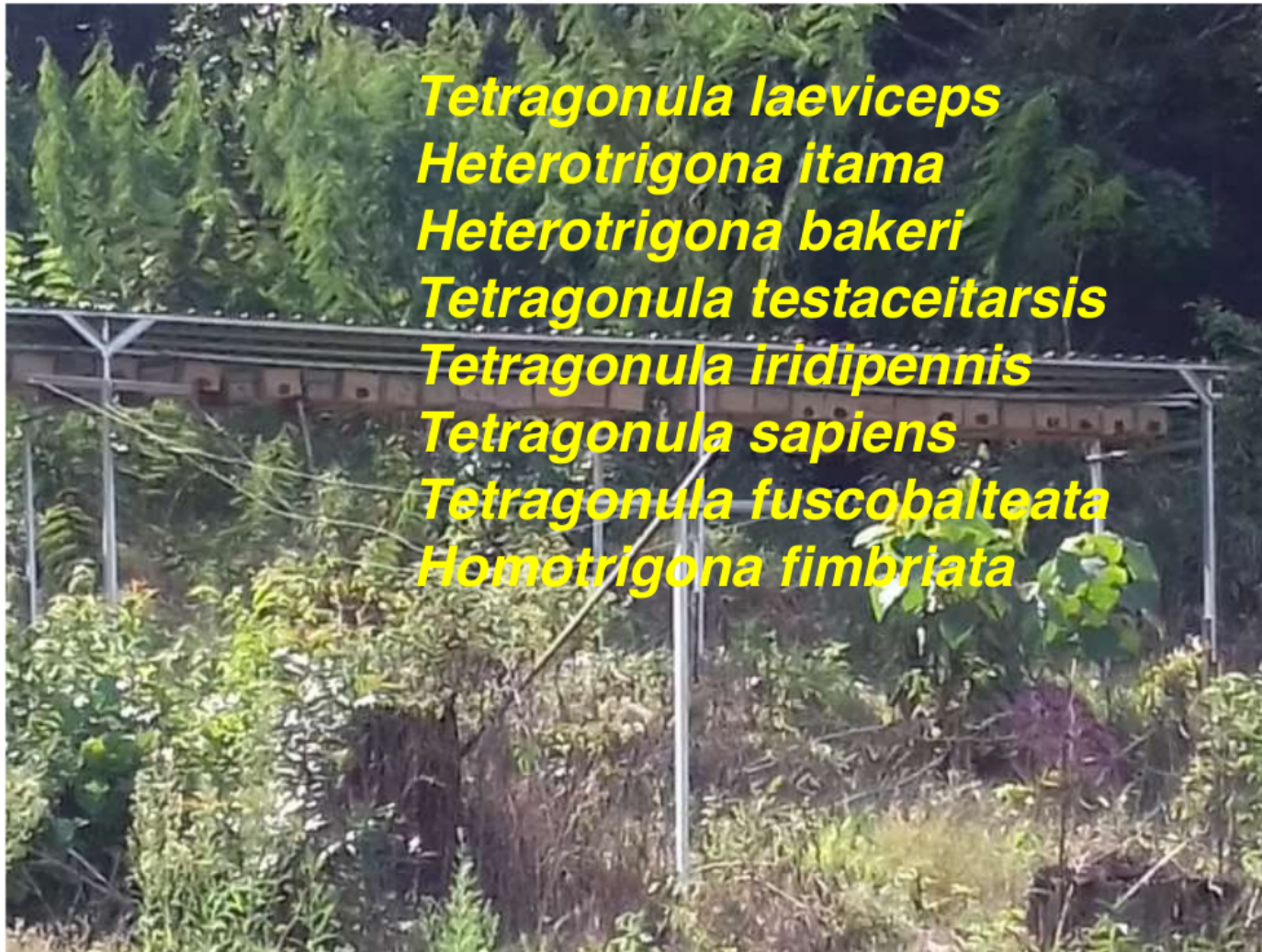
Samarinda

Balikpapan

Panajam

Samarinda

Mr. Rendry Farm's



Tetragonula laeviceps
Heterotrigona itama
Heterotrigona bakeri
Tetragonula testaceitarsis
Tetragonula iridipennis
Tetragonula sapiens
Tetragonula fuscobalteata
Homotrigona fimbriata

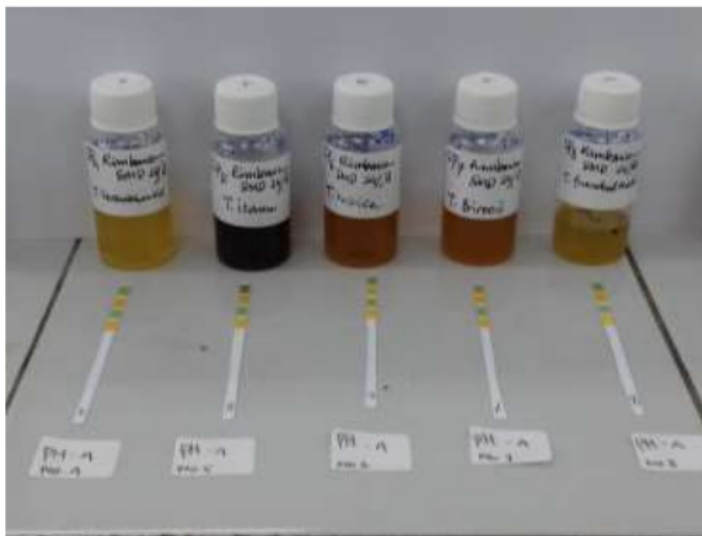
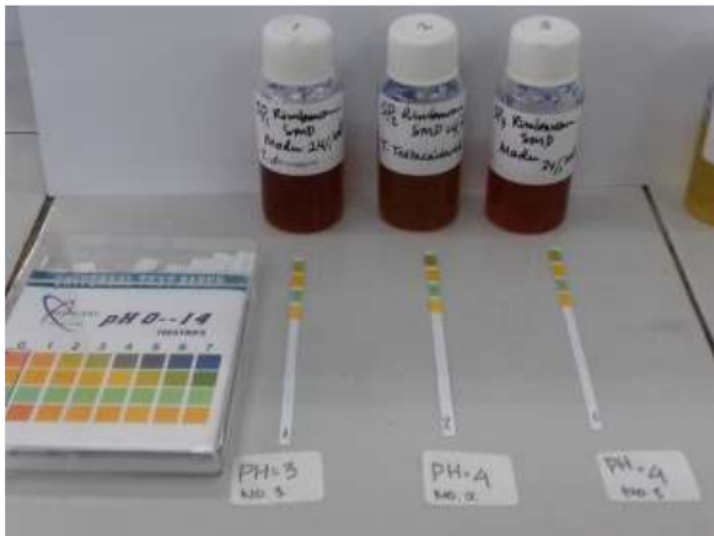
Location
near
Mulawarm
an Univ
education
forest



Homotrigona fimbriata

2. Laboratory Works

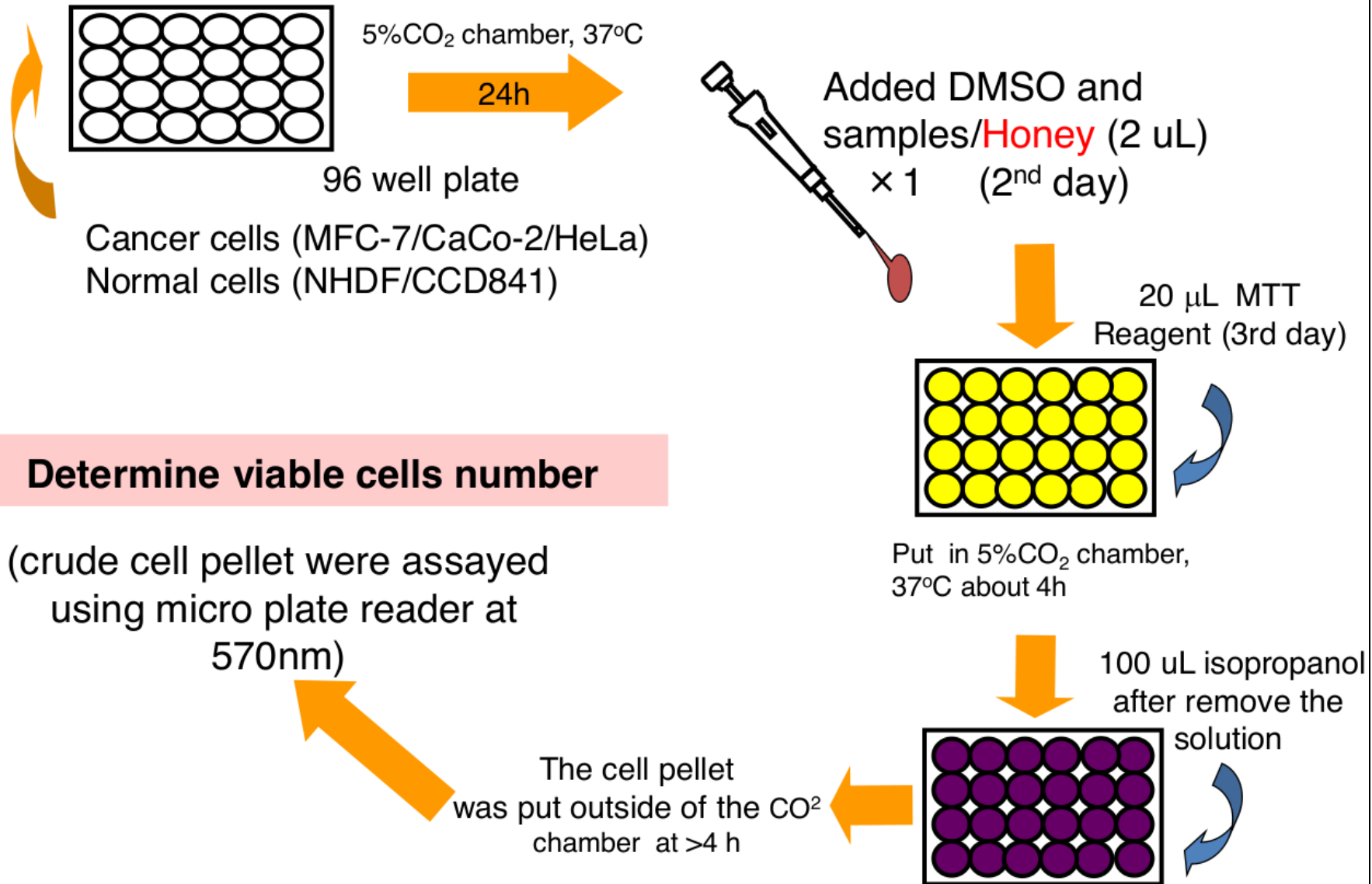
1. Sample Preparation (extraction)

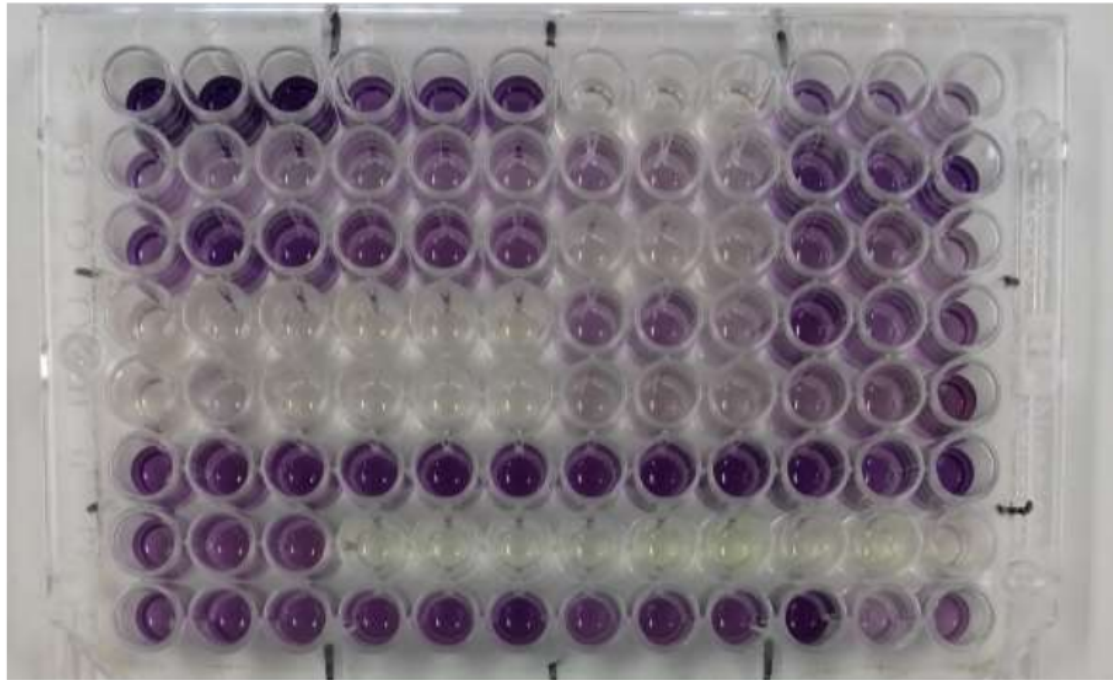


Honey Sample code	Species
SP-1/SHYO-10	<i>Homotrigona fimbriata</i>
SP-2/SHYO-11	<i>Tetragonula testaceitarcis</i>
SP-3/SHYO-12	<i>Tetragonula laeviceps</i>
SP-4/SHYO-13	<i>Tetragonula sapiens</i>
SP-5/SHYO-14	<i>Heterotrigona bakeri</i>
SP-6/SHYO-15	<i>Heterotrigona itama</i>
SP-7/SHYO-16	<i>Tetragonula iridipennis</i>
SP-8/SHYO-17	<i>Tetragonula fuscobalteata</i>

2. Sample Analysis : cytotoxicity in cancer cells

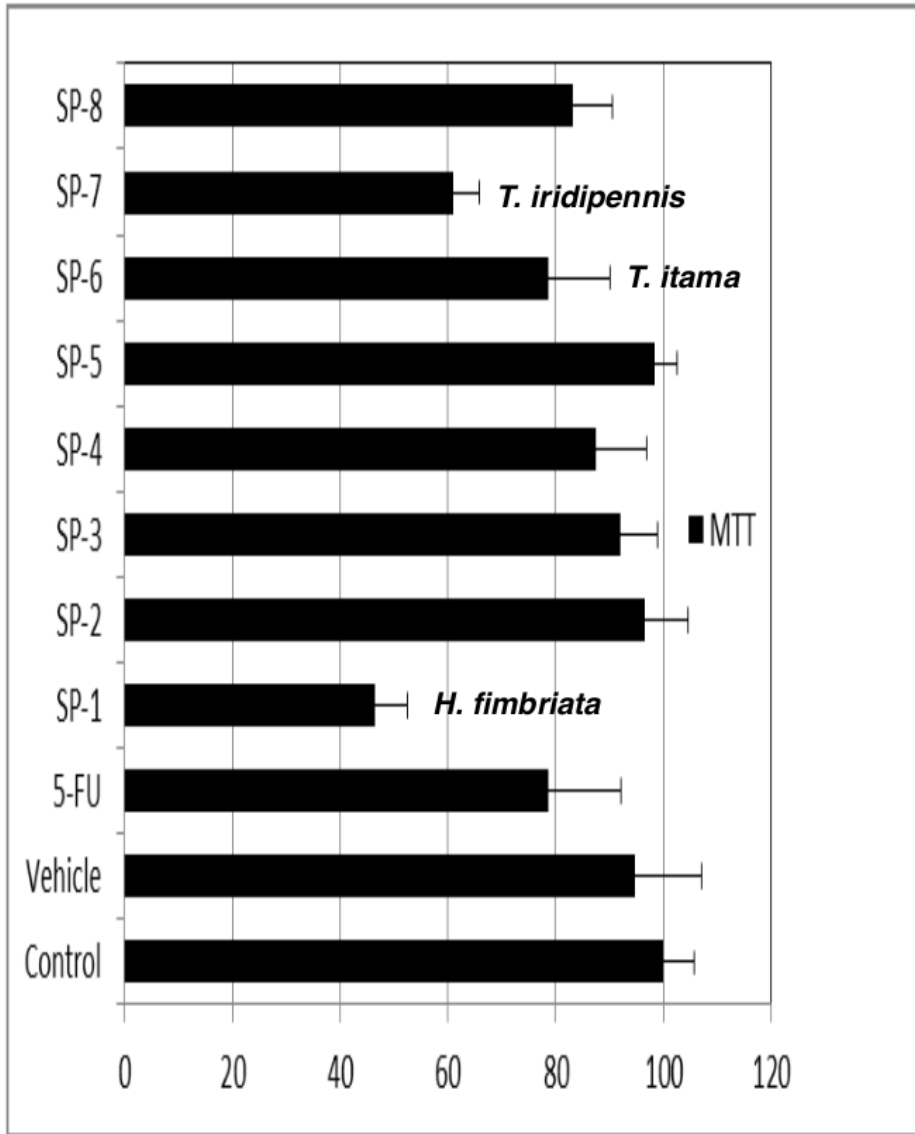
Cell viability test (cytotoxicity effect)





Purple : living cells
Clear : Dead Cells

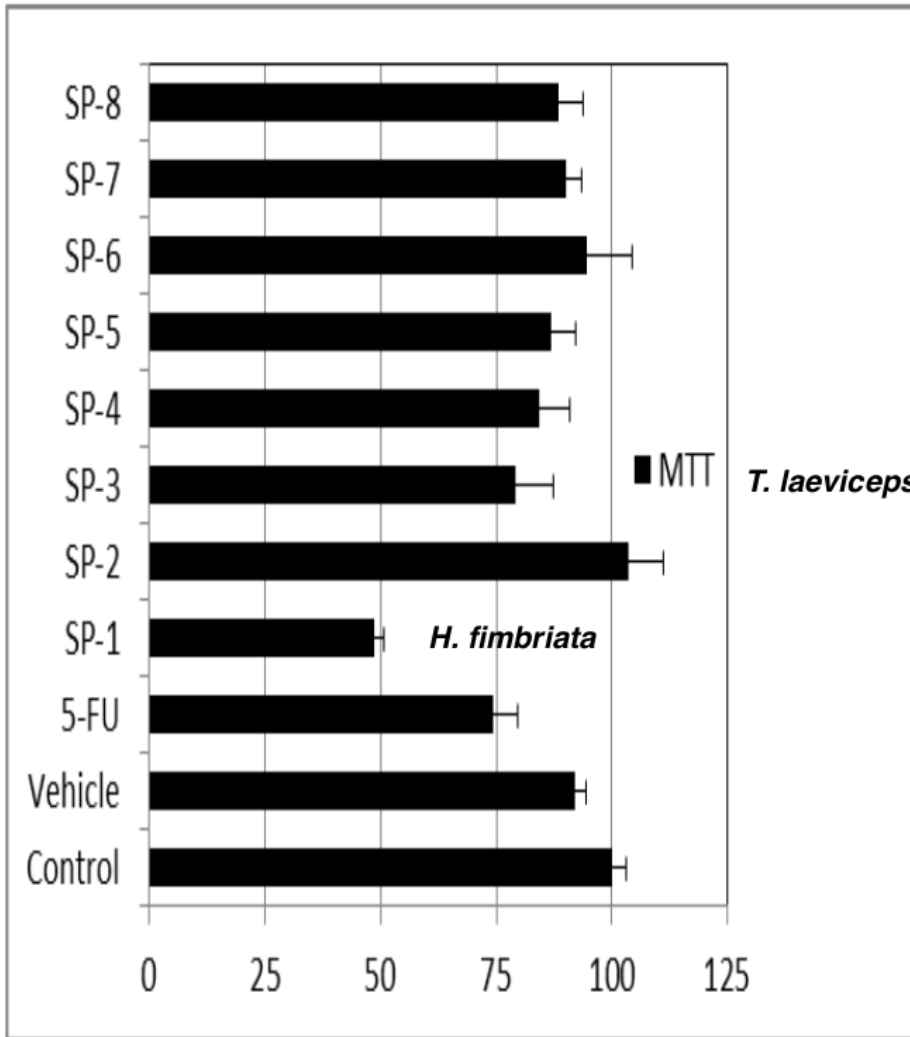
HeLa (Cervical) cancer cells



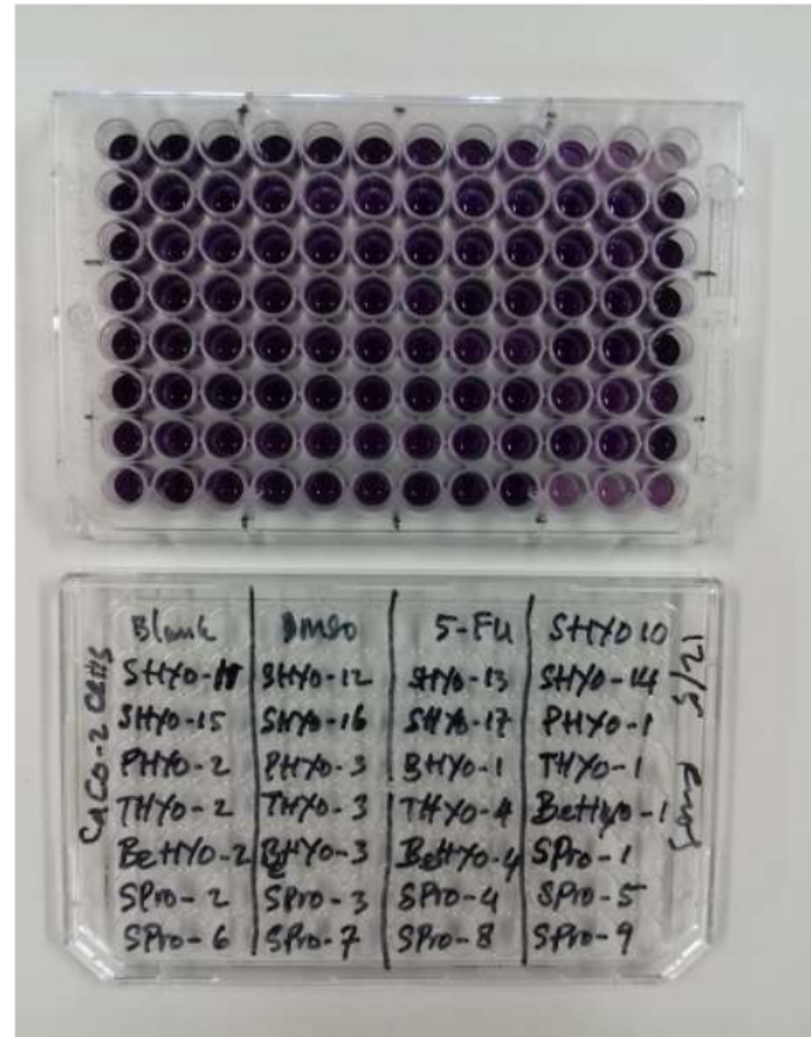
Control vs samples



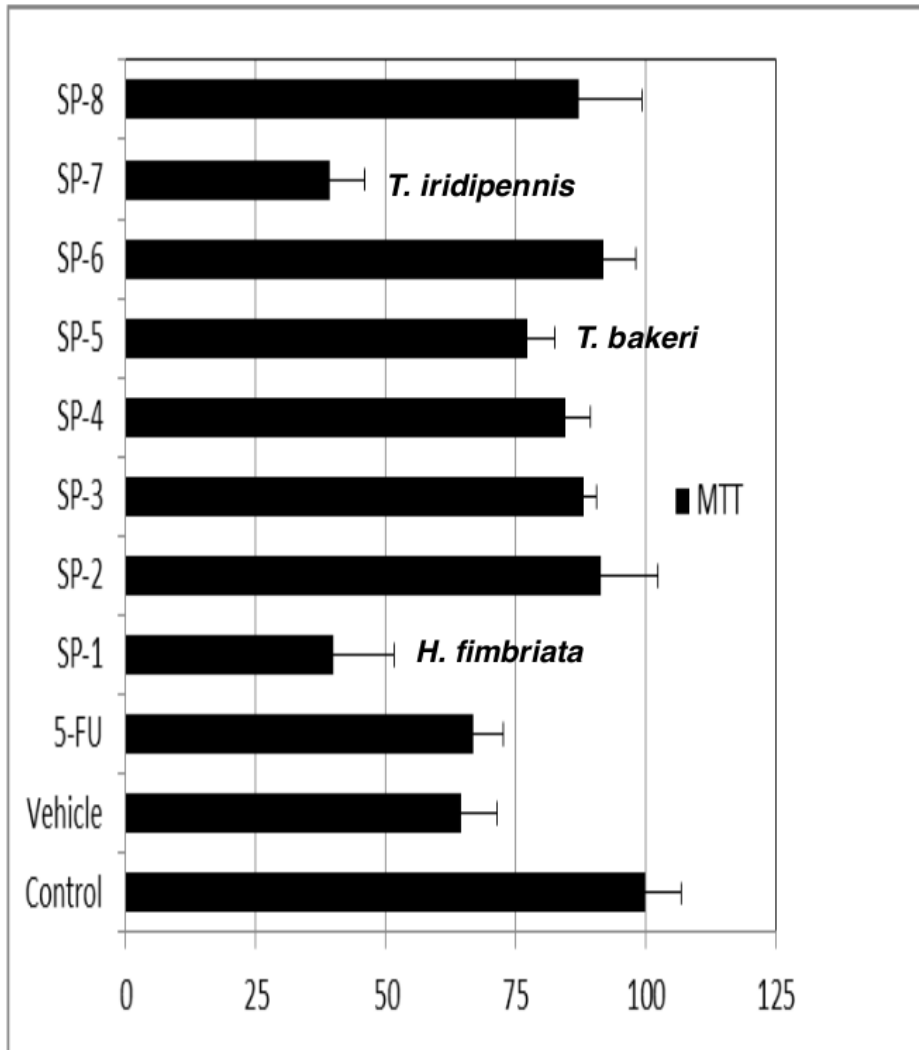
CaCo (Colon) cancer cells



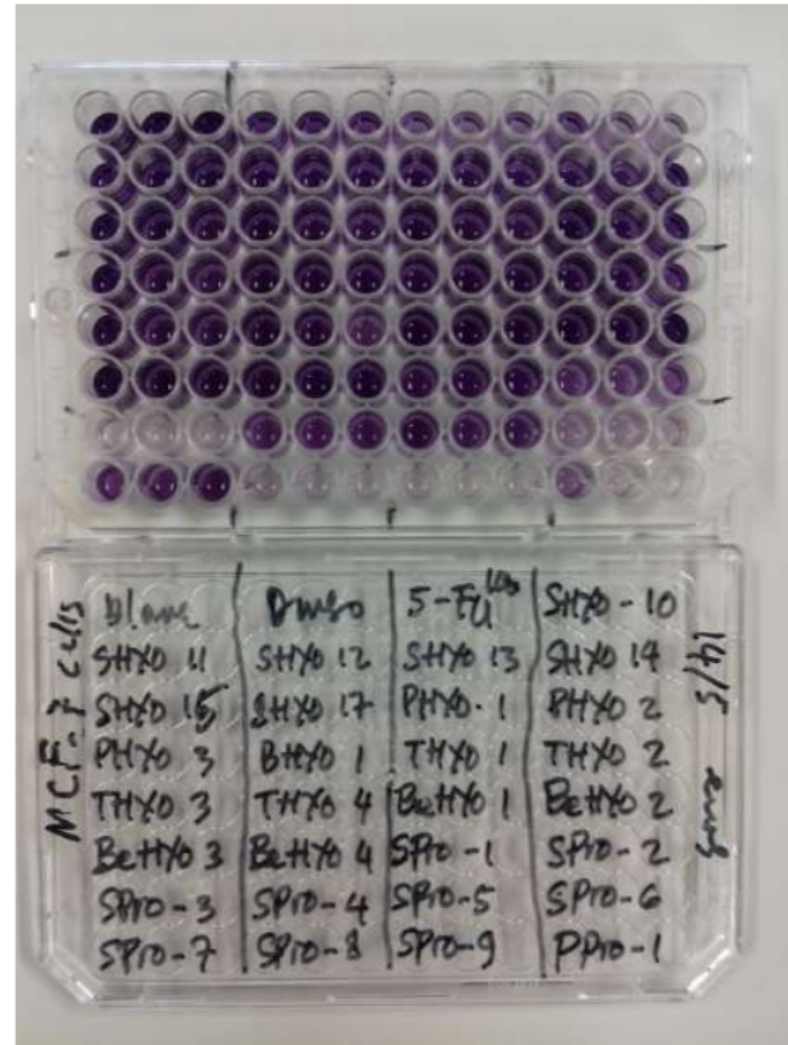
Control vs samples



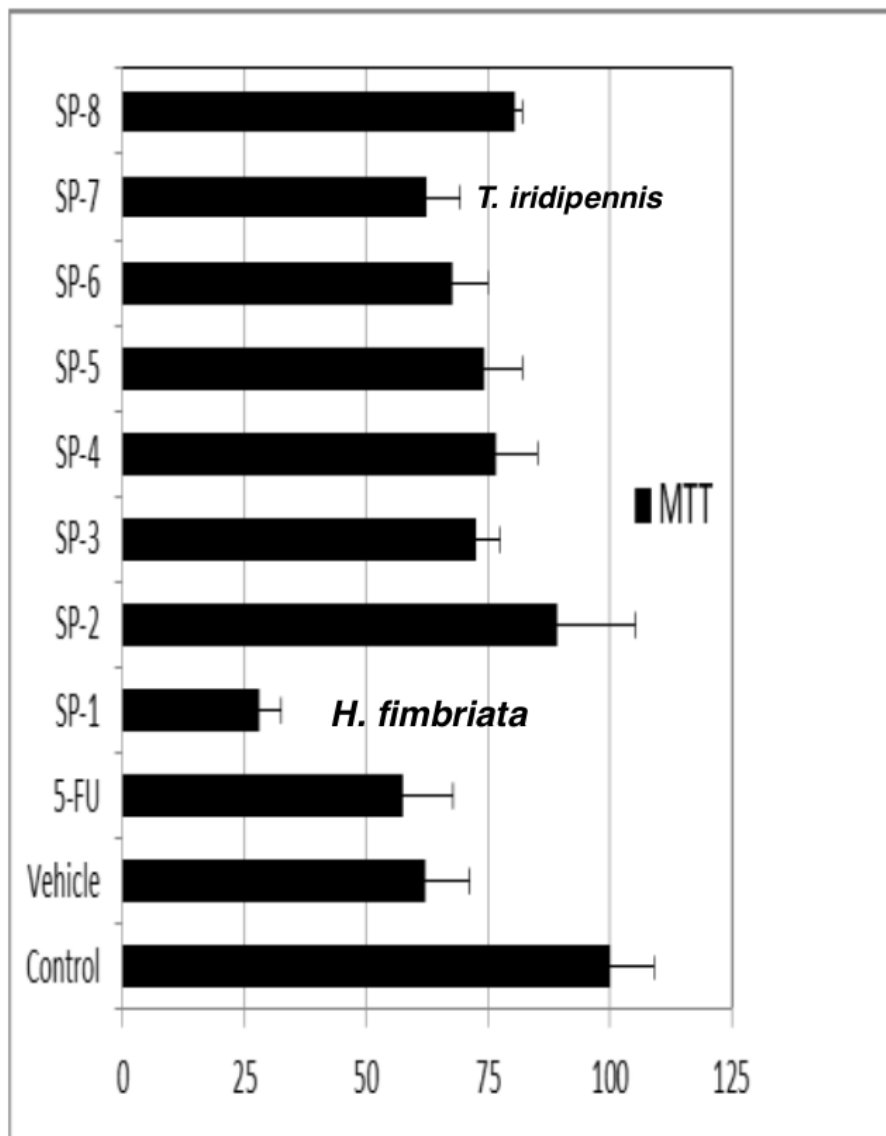
MCF-7 (Breast) cancer cells



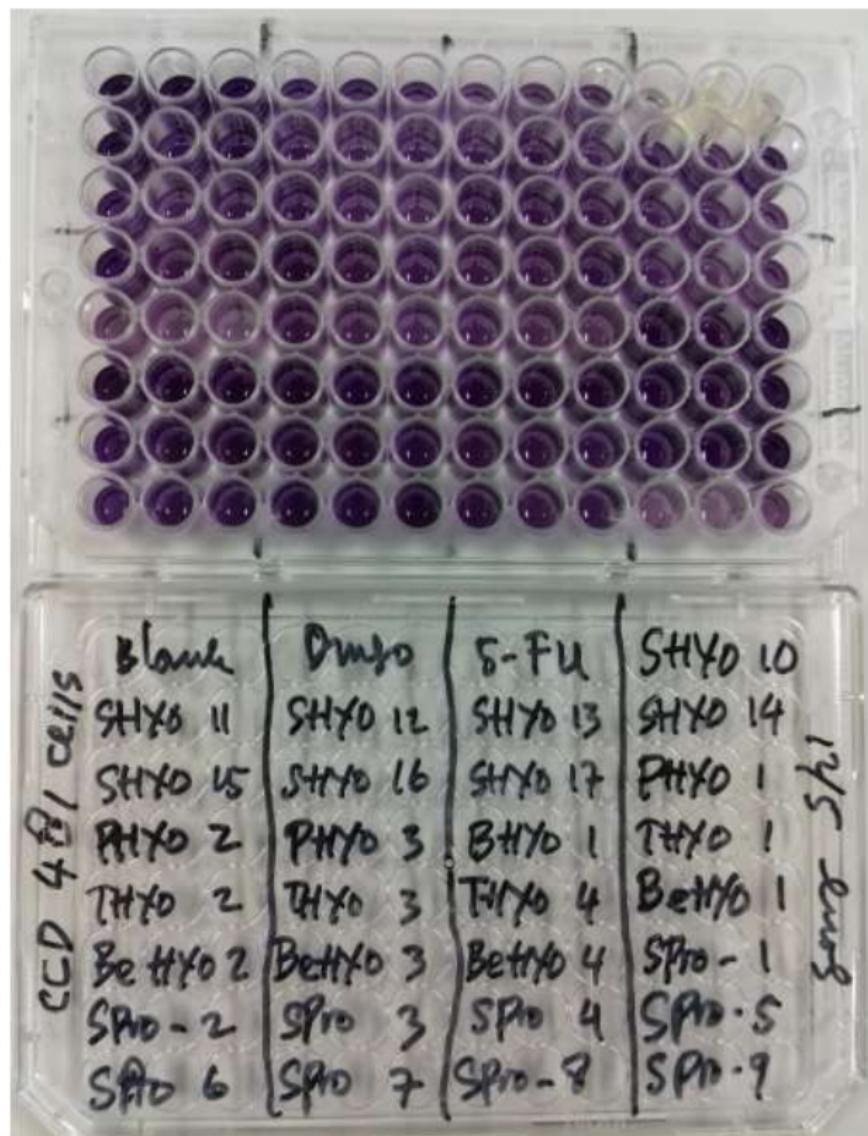
Control vs samples



CCD481 (Normal) cells



Control vs samples



4. Conclusion

- **Honey of *Homotrigona fimbriata* cause cytotoxic in MCF-7 (Breast), HeLa (servix), and Caco2 (Colon cancers)**
- **Need further experiment for mechanism and application for source of medicine and ist safety**

Thank you very much for your kind attention

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