

# STERILITY OF DEXTROSE AND RINGER LACTATE INFUSION THAT OBTAINED THROUGH ONLINE SHOPS



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# introduction



# Steril Products



**Large Volume  
Parenteral  
(LVP)**



**Eye Drop**



**Burn Ointment**



**Small Volume  
Parenteral (SVP)**



**Eye Ointment**

# Requirement

- Infusion is a therapy carried out by damaging body tissue (invasive) to supply fluids, electrolytes, nutrients, and drugs through blood vessels (Potter & Perry, 2005)



## Research Question

What are the sterility of dextrose and ringer lactate infusion that obtained through online shops?

## Aim

The aim of this research are to analyze the sterility of dextrose and ringer lactate infusion obtained through online shops.

# Hypothesis

- **H0: Dextrose & Ringer Lactate infusion obtained through online shops were not sterile.**
- **H1: Dextrose & Ringer Lactate infusion obtained through online shops were sterile.**

# Research Variables

## Independent Variable

**The independent variable in this study were brand of ringer lactate & dextrose infusion that obtained through online shops.**

## Dependent Variable

**The dependent variable in this study was the sterility.**

# Populasi

The population of this study were ringer lactate infusion and dextrose infusion obtained from online shops. The online shops were [www.tokopedia.com](http://www.tokopedia.com), [www.bukalapak.com](http://www.bukalapak.com), [www.shopee.com](http://www.shopee.com).

# Sample

The sample of this research were obtained from the online shopping application

- Dextrose Infusion (BUKALAPAK & SHOPEE)
- Ringer Lactate Infusion (SHOPEE & TOKOPEDIA)

# Equipments



Incubator (Binder BD-115)



Autoclave (All American)



Oven (Binder FD-115)



*Laminar Air Flow Cabinet* (Speg Air Tech)

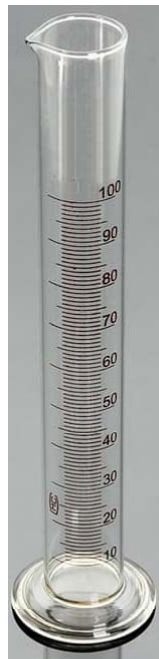


pH meter Schott

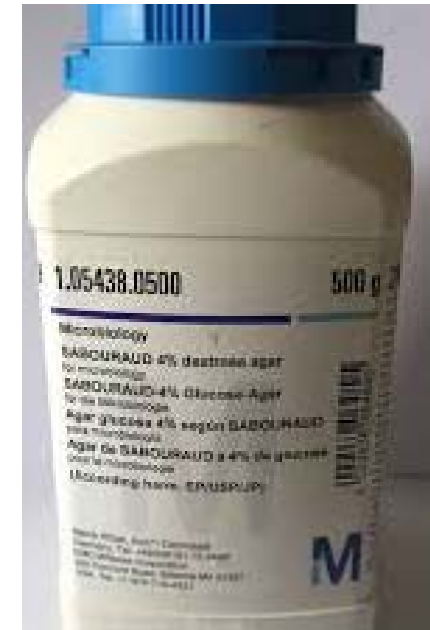
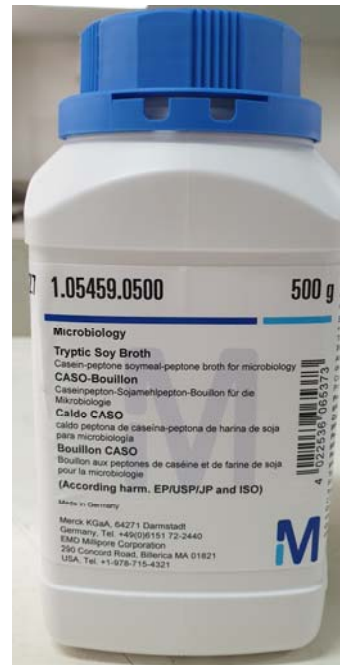
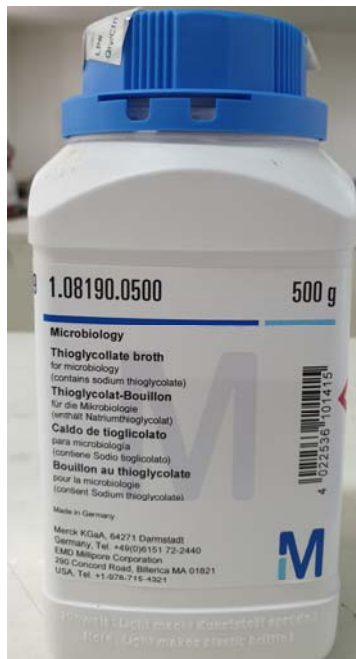


*glassware*

# Equipments



# Materials



Fluid Thioglycollate Medium Soybean Casein Digest Medium

Nutrient Agar Medium

SDA Medium



*Candida albicans*



*Bacillus subtilis*

Ringer

Lactate Infusion

Dextrose Infusion

Alcohol 70%

Aquadem

# Methods

- Sample purchase
- Preparation and sterilization of media
- Sterilization of glassware
- Sterilization of Personal Protective Equipment
- Cleaning of LAFC
- Sterility test for ringer lactate infusion
- Sterility test for dextrose infusion
- Preparation positive and negative controls
- Incubation.

# Preparation of fluid thioglycollate medium (FTM)



weighed 18 grams

dissolved with 600 ml  
of aquadem



After sterilization, check the  
pH ( $7.1 \pm 0.2$ )

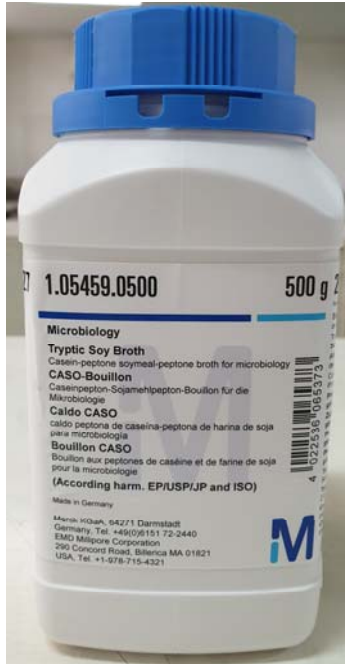
The media is sterilized by  
autoclave at 121C for 15 minutes



poured in six bottles of  
100 ml each



# Preparation of soyabean casein digest medium (SCDM)



weighed 18 grams

dissolved with 600 ml  
of aquadem



After sterilization, check the  
pH ( $7.3 \pm 0.2$ )

The media is sterilized by  
autoclave at 121C for 15 minutes



poured in six bottles of  
100 ml each



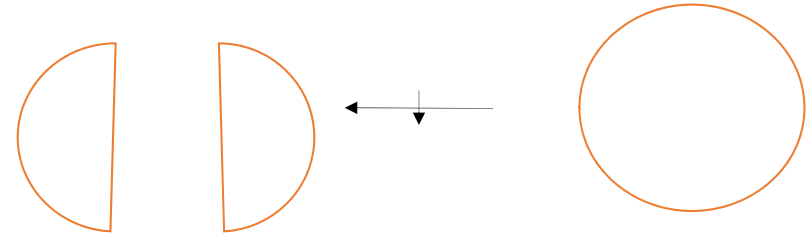


By using syringe  
taken 50 ml  
infusion



Needle of  
syringe  
replaced by  
filter holder

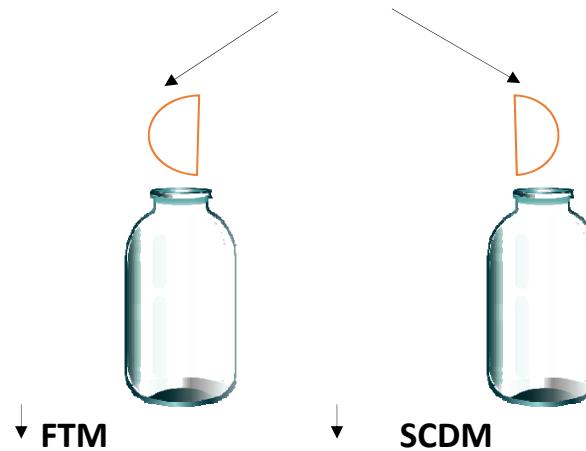
50 ml infusion  
filtrate through  
filter membrane



filter membrane was cut  
into two parts

filter membrane taken  
from filter holder

# STERILITY



Incubated 35°C  
for 14 days

Incubated 25°C  
for 14 days

# Results of control positive & control negative

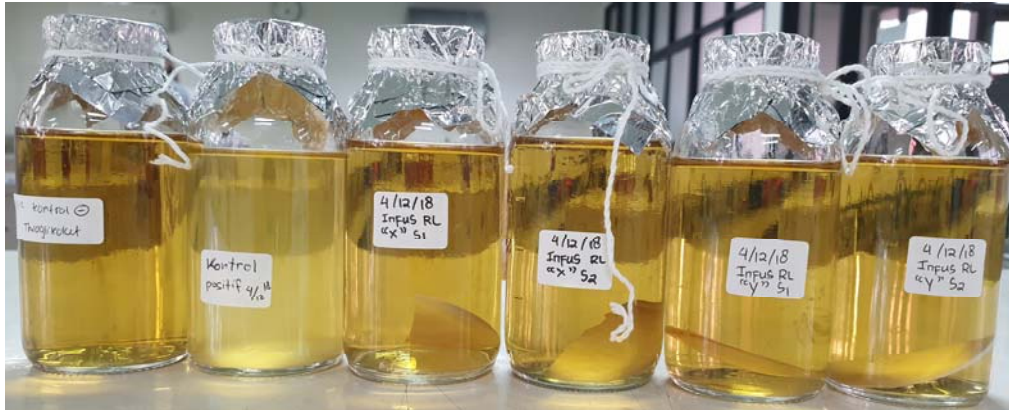
<b>Replication</b>	<b>fluid thioglycollate medium (incubated 35°C)</b>	<b>soyabean casein digest medium (incubated 25°C)</b>
<b>1</b>	+	+
<b>2</b>	+	+
<b>3</b>	+	+

<b>Replication</b>	<b>fluid thioglycollate medium (incubated 35°C)</b>	<b>soyabean casein digest medium (incubated 25°C)</b>
<b>1</b>	-	-
<b>2</b>	-	-
<b>3</b>	-	-

**(-) = There is no turbidity that indicates no bacterial / fungal growth**

**(+) = Turbidity occurs which indicates the growth of bacteria / fungi**

# the result of sterility test of ringer lactate infusion (Replication 1)



**Fluid Thioglycollate Medium on 7 day**



**Soybean Casein Digest Medium on 7 day**



**Fluid Thioglycollate Medium on 14 day**



**Soybean Casein Digest Medium on 14 day**

# the result of sterility test of ringer lactate infusion (Replication 1)

Medium	Brand	Number of sample	Day			
			0	3	7	14
FTM	X	1	-	-	-	-
		2	-	-	-	-
	Y	1	-	-	-	-
		2	-	-	-	-
SCDM	X	1	-	-	-	-
		2	-	-	-	-
	Y	1	-	-	-	-
		2	-	-	-	-

**(-) = There is no turbidity that indicates no bacterial / fungal growth**

**(+) = Turbidity occurs which indicates the growth of bacteria / fungi**

# the result of sterility test of dextrose 5% infusion (Replication 1)



Fluid Thioglycollate Medium on 7 day



*Soybean Casein Digest Medium on 7 day*



Fluid Thioglycollate Medium on 14 day



*Soybean Casein Digest Medium on 14 day*

# the result of sterility test of dextrose 5% infusion (Replication 1)

Medium	Brand	Number of sample	Day			
			0	3	7	14
FTM	U	1	-	-	-	-
		2	-	-	-	-
	V	1	-	-	-	-
		2	-	-	-	-
SCDM	U	1	-	-	-	-
		2	-	-	-	-
	V	1	-	-	-	-
		2	-	-	-	-

**(-) = There is no turbidity that indicates no bacterial / fungal growth**

**(+) = Turbidity occurs which indicates the growth of bacteria / fungi**

# CONCLUSIONS

From the sterility testing that has been done, it can be concluded that the infusion of dextrose and ringer lactate traded online is sterile.

# SUGGESTION

It is recommended for further researchs, it is necessary to do a pyrogenity test of both Ringer Lactate and Dectrose infusion traded through an online shop.

Although the test results are sterile, caution is needed when buying drugs online.



Thank You



# Perbandingan antara Produk yang Dibeli di Apotek dengan Produk yang dibeli melalui *Online Shop*



Produk yang dibeli melalui *online shop*



Produk yang dibeli melalui apotek



Produk yang dibeli melalui *online shop*



Produk yang dibeli melalui apotek



# Penyiapanan Media Biakan *Nutrient Agar*



Dilarutkan dengan aquadem sebanyak 50 ml

Media *Nutrient Agar* ditimbang sebanyak 1,5 gram



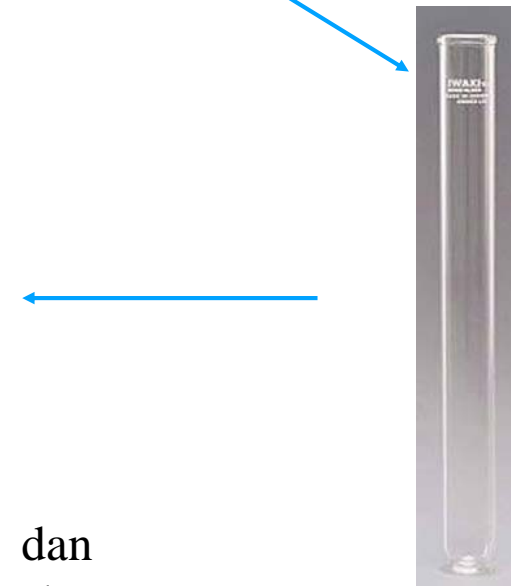
Ambil 1 ose bakteri *Bacillus subtilis* secara aseptik

Ditanam pada agar miring *Nutrient Agar* kemudian diinkubasi pada suhu 37°C selama 1 hari

Diletakkan miring dan diamkan hingga memadat



Media disterilkan dengan otoklaf pada suhu 121°C selama 15 menit



Didinginkan hingga 45°C lalu tuang ke dalam tabung reaksi steril,

# Penyiapanan Media Biakan SDA



Dilarutkan dengan aquadem sebanyak 15 ml

Media SDA ditimbang sebanyak 1 gram



Jamur *Candida albicans* ditanam pada agar miring SDA kemudian diinkubasi pada suhu 25°C selama 3 hari



Media disterilkan dengan otoklaf pada suhu 121°C selama 15 menit



Diletakkan miring dan diamkan hingga memadat



Didinginkan hingga 45°C lalu tuang kedalam tabung reaksi steril,