TOMATO PASTE LYCOPENE AS AN ANTICOAGULANT

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INTRODUCTION

Tomato

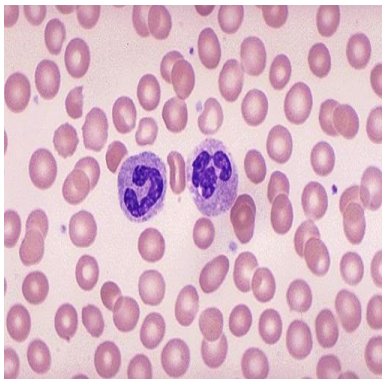
– Has an anticoagulation properties (Yamamoto et al., 2003).

Lycopene

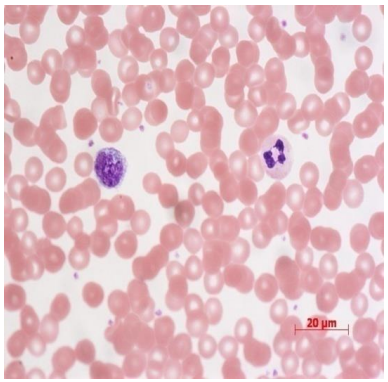
– Causes the anticoagulation (Hsiao et al.,2005).

Anticoagulant

– Agents that prevents coagulation or clotting (Brown, 1993).



Anticoagulated blood (Microscopic view)



Clotted/coagulated blood (Microscopic view)

Anticoagulated blood (Macroscopic view)

STATEMENT OF THE PROBLEM

1.) Is there a difference in the two varieties of tomatoes (Cherry tomato and Roma tomato) in terms of their phytochemical composition specifically lycopene?

2.) Does lycopene from the two tomato varieties exhibit anticoagulation potential when applied “in vitro”? What characteristics are observable in relation to the anticoagulation potential of the two tomato varieties when applied “in vitro” using Coagulation/Clotting Time Determination: Lee-White method when tested in various blood types?

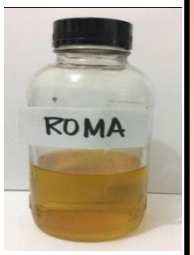
3.) Is there a significant difference in the lycopene anticoagulant properties of the two tomato varieties in terms of Coagulation/Clotting Time Determination: Lee-White method when tested in different blood types?

METHODOLOGY

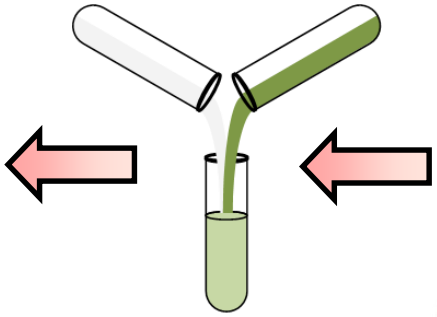
PREPARATION OF TOMATO PASTE LYCOPENE EXTRACT

a. Cherry tomato

b. Roma tomato



Lee-White Clotting Time Method



RESULTS AND DISCUSSIONS

TABLE 1a: Physical properties of Cherry and Roma tomato lycopene.

	CHERRY TOMATO	ROMA TOMATO
Color:	Dark orange red	Yellow orange
pH:	Acidic	Acidic

TABLE 1b: Mean difference in lycopene concentration of Cherry and Roma tomato lycopene.

	CHERRY TOMATO	ROMA TOMATO
Concentration in terms of absorbance (Using the Spectrophotometer) Wavelength used – 503 nm:	**0.783**	**0.759**

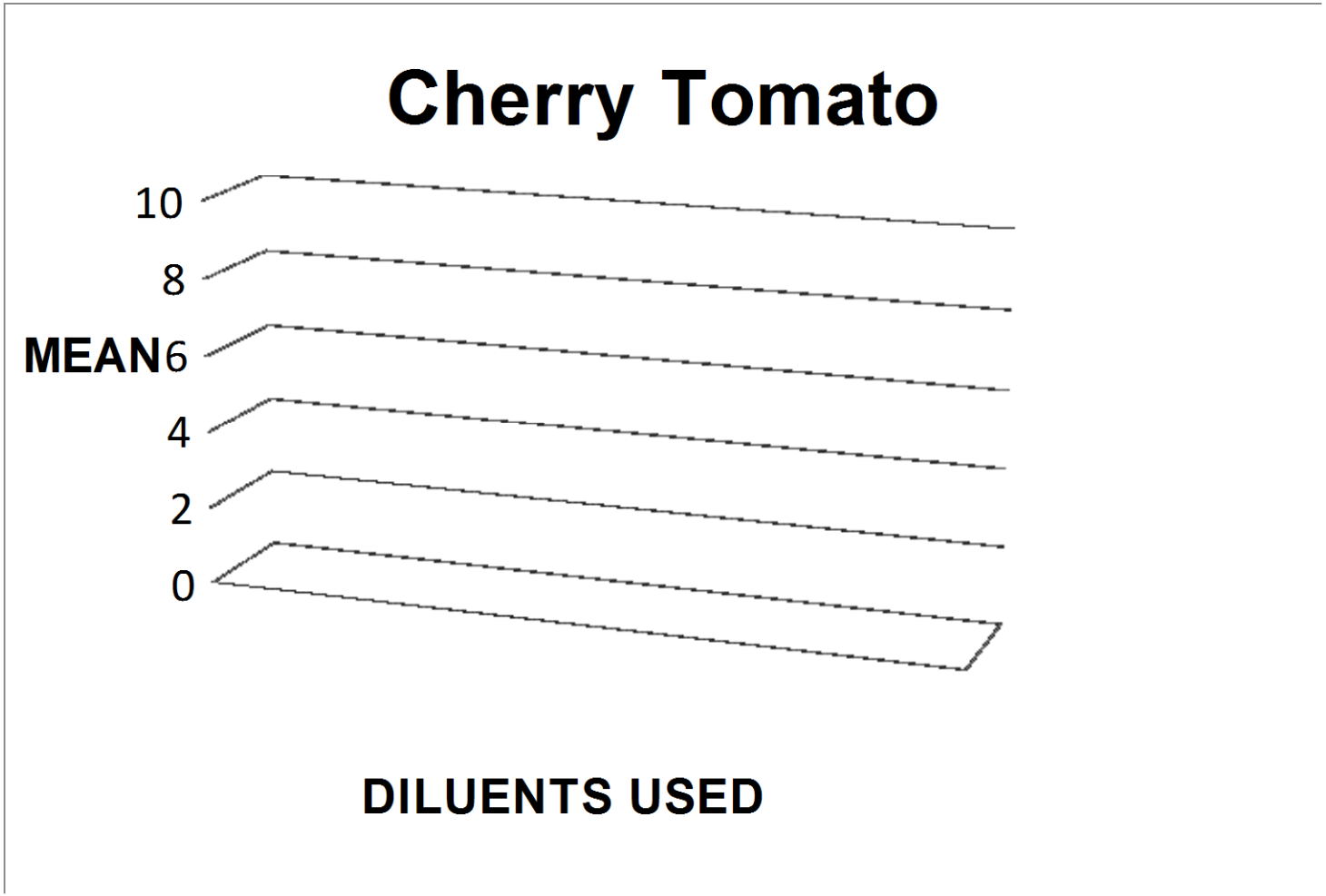


FIGURE 1a: Comparison of clotting time using Lee and White method in ABO blood types and varied diluents of Cherry tomato.

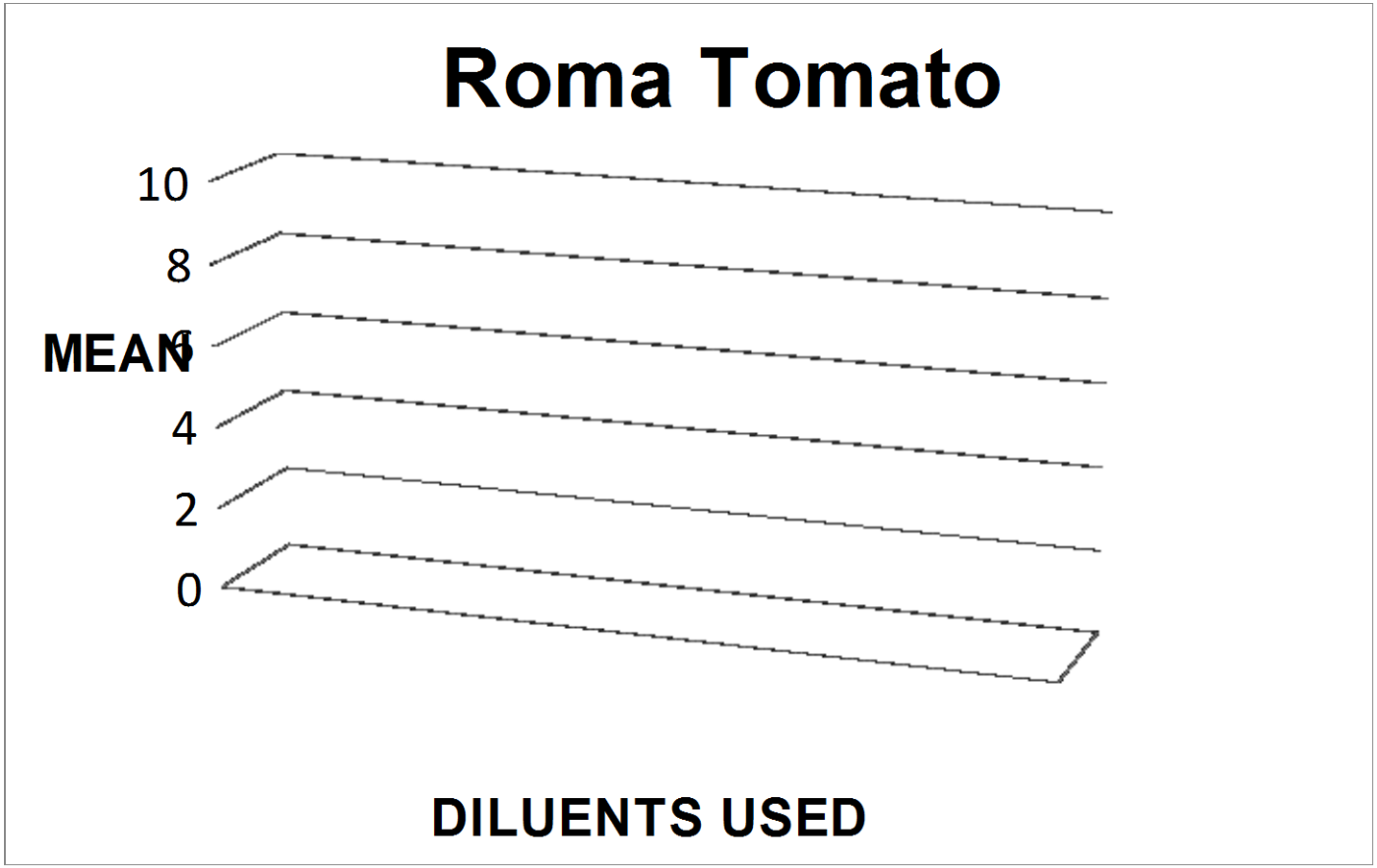


FIGURE 1b: Comparison of clotting time using Lee and White method in ABO blood types and varied diluents of Roma tomato.

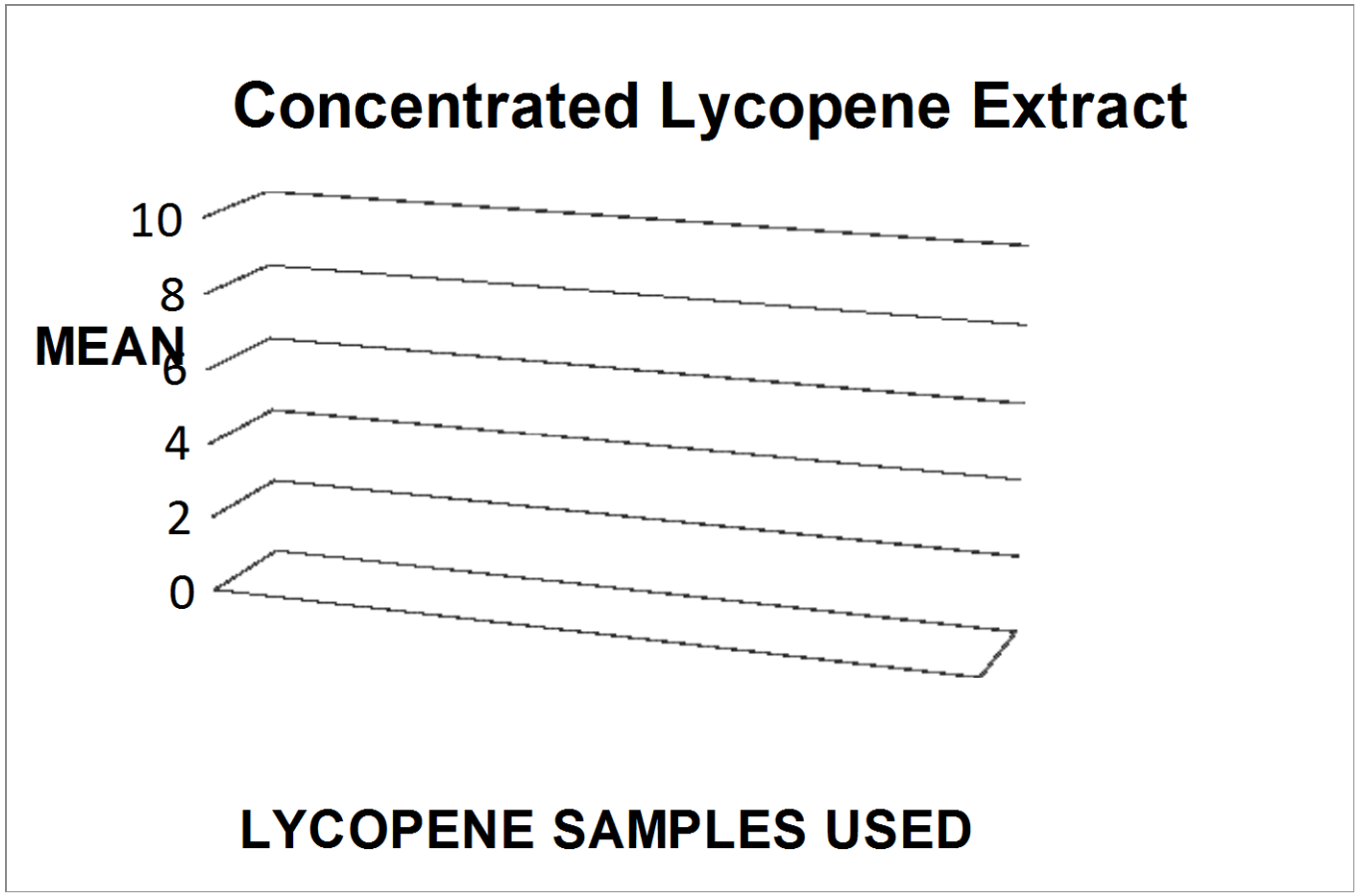


FIGURE 1c: Comparison of clotting time using Lee and White method in ABO blood types and concentrated lycopene extract from Cherry and Roma tomato.

Lee and White Clotting Time Results

Controls (Citrated Blood)

Concentrated Roma Lycopene

Concentrated Cherry Lycopene

1:20 dilution of Cherry and Roma tomato with hexane applied in blood types “A”,”B”,”AB”, and “O”

CONCLUSION

1. Cherry tomato contains more lycopene than Roma tomato.

1. Lycopene from Cherry and Roma tomato diluted with hexane (1:20) exhibits anticoagulation property when applied “in vitro” in blood types “A”, “B”, “AB”, and “O”.

1. Blood types “A”,”B”, and “AB” coagulates longer with 1:20 hexane dilution when Roma tomato was used. While for blood type “O” at the same diluent and dilution shows prolonged coagulation when Cherry tomato was used.

1. Only small amount of lycopene from the two tomato varieties are needed to exhibit anticoagulant effect.

RECOMMENDATIONS

1. It is recommended further that studies should be made on purified lycopene from the two tomato varieties as an anticoagulant be done.

1. Other methods for coagulation aside from Lee-White Clotting time determination be done such as Prothrombin time (PT) and Activated Partial Thromboplastin time (aPTT) to affirm the results of the study.

1. Similar fruits containing lycopene be also explored such as like watermelon and guava.

1. Look for an alternative solvents than hexane that can enable lycopene to exhibit its anticoagulation property.

1. Further studies on the specific coagulation factors may be identified as to their effect by lycopene.

THANK YOU FOR LISTENING!!!