



College of Engineering

GE106: Introduction to Engineering Design

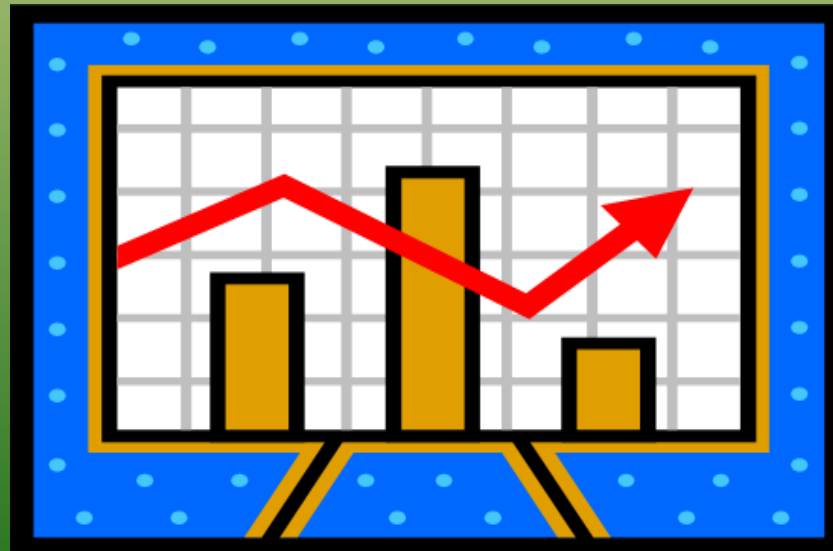
Poster Preparation

By

Matthew Amao

Guide for Poster Design

- Size **A0** (Portrait/Vertical).
- You can use Microsoft PowerPoint for the design.
- Use heavy lines for ease of viewing
- Should be easy to read from more than one meter away.



Font Types, Use and Size

Section	Font Size
Title	96 pt
Authors	72 pt
Affiliations	36-48 pt
Section Header	32 pt
Text	24 pt
Acknowledgments	18 pt

Suggested Font Type:

Tahoma **Helvetica** **Palatino** **Arial** **Times New Roman***

Poster's Mandatory Contents

Your poster **must** include:

- **A descriptive title**
- **Overview of the design project**
- **What? How? Why? (Problem Statement)**
- **Primary and secondary objectives**
- **Constraints and criteria**
- **Human factors**
- **Creative component**
- **Generated concepts**
- **Concept evaluation**
- **Conclusions**
- **Acknowledgements**

Some Advice

- Photographs as backgrounds lose quality when enlarged (use 150-300 dpi resolution).
- Dark backgrounds are easier on the eye but use more ink.
- Colored backgrounds can often break the monotony of white posters, thus attracting a viewer.
- Use light backgrounds with dark photos and vice versa.
- Neutral/gray backgrounds enhance color photos while white backgrounds reduce their impact.

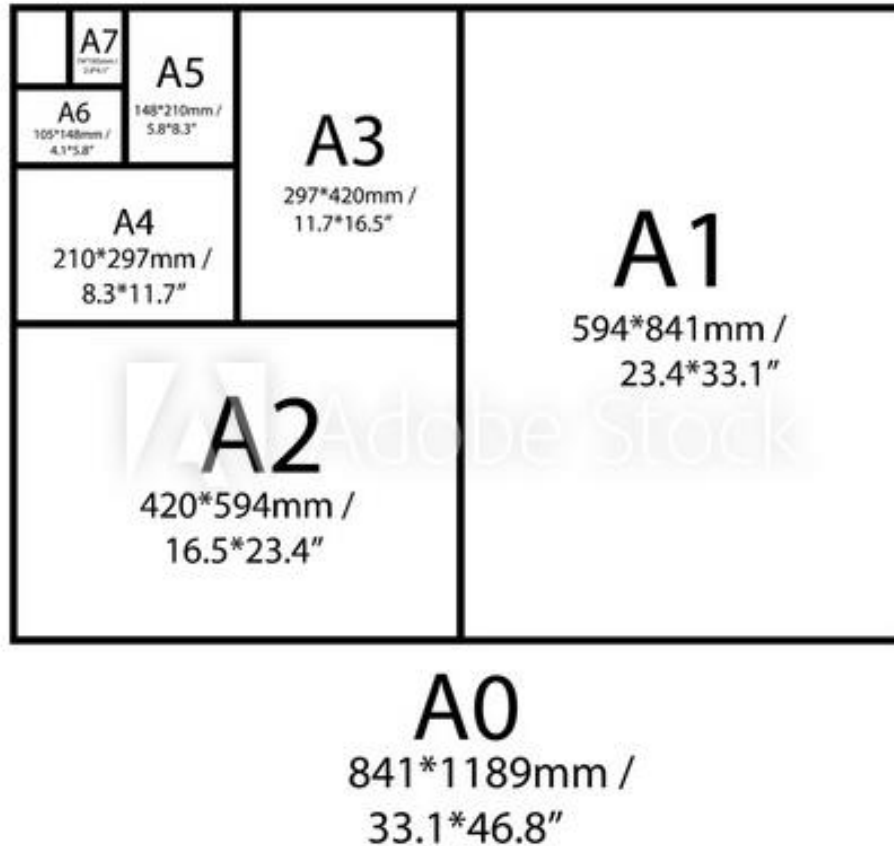
Poster Sizes

	Milimeter		Inches	
	Height	Width	Height	Width
A0	1189	841	46.8	33.1
A1	841	594	33.1	23.4
A2	594	420	23.4	16.5
A3	420	297	16.5	11.7
A4	297	210	11.7	8.3
A5	210	148	8.3	5.8
A6	148	105	5.8	4.1
A7	105	74	4.1	2.9
A8	74	52	2.9	2.1

Your Poster must be **A0** in Size.



Poster Size Sample



#259420814

Be creative... Examples of Posters

(Comments)

"Setting the Standard for Marine Mammal Observation Worldwide"

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- Contribute to the aims and objectives of the MMOA
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ANTIOXIDANT ACTIVITY OF ANTHOCYANINS OF *Syzygium cumini* FRUIT

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ABSTRACT

The aim of this study was to determine the potency of jambolan (*Syzygium cumini*) fruit anthocyanins as antioxidant by evaluating their antioxidant activity using in vitro assays. Several different assays of the antioxidant activity including DPPH radical-scavenging assay, hydroxyl radical-scavenging assay, superoxide radical-scavenging assay, and lipid peroxidation assay using human low density lipoprotein have been conducted. The phenolic compounds in methanolic extract were separated by using a solid phase extraction (C18 Sep-Pac cartridge), providing (1) anthocyanin phenolic fraction and (2) non-anthocyanin phenolic fraction. The phenolic content and antioxidant activity of the fractions have been compared with that of the methanolic extract. The phenolic content of anthocyanin-phenolic fraction represented approximately 83% (w/w) in the phenolic content of methanolic extract. The antioxidant activity of anthocyanin-phenolic fraction was slightly higher than that of methanolic extract. The antioxidant activity of jambolan extract was mainly contributed by anthocyanins. Moreover, anthocyanins extracted from the jambolan pulp, jambolan peel, and anthocyanin fraction were also evaluated their antioxidant activity. Jambolan pulp extract (JPuE), jambolan peel extract (JPuE), and jambolan anthocyanin fraction (JAF) exhibited significant antioxidant activities, in descending order: JAF > JPuE > JPuE. Among jambolan samples, jambolan anthocyanin fraction was the most effective as antioxidant and the antioxidant activity approached the activity of the standard compounds, quercetin, catechin, ascorbic acid. These results suggest that anthocyanins contained in the jambolan fruit with antioxidative properties are potential utilized for functional natural food colorants and nutraceutical.

Keyword: *Syzygium cumini* fruit, jambolan, anthocyanins, antioxidant

INTRODUCTION

Jambolan (*Syzygium cumini*) fruit is rich in anthocyanin pigments especially in its peel part. Anthocyanins of jambolan fruit have been studied extensively in our laboratory. Jambolan anthocyanins have been identified as 3,5-diglucoside derivatives of delphinidin (41.29%), petunidin (27.79%), malvidin (25.60%), cyanidin (4.19%) & peonidin (1.15%). Other study exhibit that jambolan anthocyanins have better color stability than enocyanins, commercial anthocyanin colorant from grape peel. Through intermolecular copigmentation reaction with ferulic acid, sinapic acid, caffeic acid, and rosemary polyphenol extract, color and stability of jambolan anthocyanins can be increased. In the present study, the antioxidant activity of jambolan anthocyanins was evaluated using several different in vitro assays.

RESULTS

Contribution of Jambolan Anthocyanins as Antioxidant

Sample	Total phenolic content (mg GAE/g)	Antioxidant capacity (IC ₅₀ value)
Methanolic extract	25.97 ± 0.26	10.80
Anthocyanin phenolic fraction	21.57 ± 0.21	11.20
Non-anthocyanin phenolic fraction	4.40 ± 0.05	4.00

The phenolic content of anthocyanin phenolic fraction represented approximately 83% (w/w) in the phenolic content of methanolic extract. The antioxidant activity of anthocyanin phenolic fraction was slightly higher than that of methanolic extract. Thus, the antioxidant activity of jambolan extract was mainly contributed by anthocyanin.

Antioxidant Activity of Extract and Anthocyanin Fraction

Sample	Total phenolic content (mg GAE/g)	IC ₅₀ value (µg/ml)
Jambolan pulp extract (JPuE)	15.86 ± 0.10	10.80
Jambolan peel extract (JPuE)	27.62 ± 1.42	11.20
Jambolan anthocyanin fraction (JAF)	376.69 ± 12.32	20.27 ± 4.20
Red cabbage extract (RcE)	27.70 ± 0.45	107.82 ± 2.83

Free radical scavenging activity (expressed as IC₅₀ value)

Sample	DPPH radical scavenging	Superoxide radical scavenging	Hydroxyl radical scavenging
Jambolan pulp extract (JPuE)	1756.83 ± 11.73	15.06 ± 0.88	468.48 ± 16.12
Jambolan peel extract (JPuE)	1618.83 ± 8.12	12.16 ± 0.86	300.78 ± 15.84
Jambolan anthocyanin fraction (JAF)	2332.43 ± 8.88	1.85 ± 0.34	237.27 ± 4.20
Red cabbage extract (RcE)	404.84 ± 1.06	20.67 ± 0.20	302.89 ± 14.14
Quercetin	1669.40 ± 20	1.27 ± 0.56	187.82 ± 2.83
Ascorbic acid	1348.43 ± 0.06	0.59 ± 0.06	-

Inhibitory effect of extract and anthocyanin fraction of jambolan fruit on oxidative modification of human LDL

Sample	LDL oxidation (nmol MDA per µmol protein)
Control	100
JPuE	40.20
JPuE	45.20
JAF	47.80
JAF	51.80
RcE	57.80
Quercetin	61.80
Ascorbic acid	65.80

Antioxidant Activity of Model Beverage

Sample	Total phenolic content (mg GAE/ml)	Antioxidant capacity (IC ₅₀ value)
Head phenolic (µg/ml)	165.47	10.80
Anthocyanin (µg/ml)	158.79	11.20

Jambolan pulp extract (JPuE), jambolan peel extract (JPuE), and jambolan anthocyanin fraction (JAF) exhibited significant antioxidant activities, in descending order: JAF > JPuE > JPuE. Jambolan anthocyanin fraction (JAF) was the most effective as antioxidant and the antioxidant activity approached the activity of the standard compounds, quercetin, catechin, ascorbic acid. Jambolan anthocyanins that added to a model beverage as colorant also exhibited antioxidant activity.

CONCLUSION

The antioxidant activity of jambolan fruit was mainly contributed by anthocyanin. The phenolic extract and anthocyanin fraction of jambolan fruit were effective both in scavenging reactive oxygen species (ROS) in inhibiting lipoprotein oxidation. The anthocyanins of jambolan fruit with antioxidative properties are potential utilized for functional natural food colorants and nutraceutical.

ACKNOWLEDGEMENT

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Links to YouTube Tutorial Videos on How to Prepare Posters in Microsoft PowerPoint

https://www.youtube.com/watch?v=1c9Kd_mUFDM

<https://www.youtube.com/watch?v=WnholbfcoM>



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