

Panduan membuat Slide Presentasi
FINAL NATIONAL SCIENCE FAIR FOR INDONESIAN ADOLESCENTS (NAFSIA) 2024

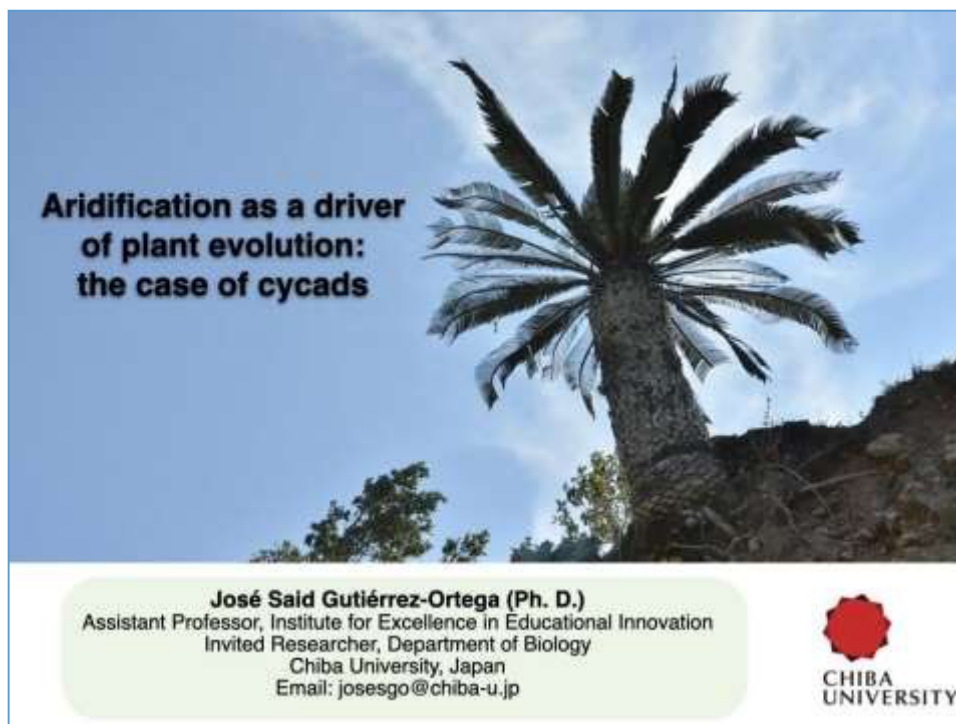
Bahasa : Indonesia
Program : Powerpoint 2010, 2013, 2016, 2019 atau yang terbaru
Ukuran Slide : 25.4 cm × 14.29 cm (“On-screen Show 16:9 size”)

Bagaimana membuat Slide Presentasinya?

1st slide : Judul, nama Peserta and nama sekolah.
2nd slide : Latar Belakang dan Tujuan
3rd slide : Metode
4th and 5th slide : Hasil dan Penjelasan Singkat
6th slides : Diskusi dan Saran

Berikut contoh :


1st slide : Judul, nama Peserta and nama sekolah.



2nd slide : Latar Belakang dan Tujuan


Background: Aridification has been a driver of biodiversity

Plants adapted to aridity have evolved multiple times




Cacti are good examples of plants adapted to aridity

I found that some cycads live in arid zones in Mexico. This is uncommon for cycads because they evolved in humid forests



Dioon caputoi lives in deserts



D. meroiae lives in humid forests

This observation makes me think about two question:

- 1- Did aridification influence the diversification of *Dioon* cycads?
- 2- If so, does adaptation to dry habitats include changes on morphology?

Purpose: To provide evidence that aridification promoted the diversification of *Dioon*

Answering to these questions can help to understand the evolutionary mechanism for which plants evolve adaptations to aridity

3rd slide : Metode

MATERIALS AND METHODS

Phylogenetic analyses

DNA extraction

PCR and Sanger sequencing

7 cpDNA regions:
5634 bp
trnL-F, *accD-psaI*,
rps16, *trnK*, *rpoc1*,
psbM-trnD, *psbB-H*

nrDNA: 414 bp
ITS2-25S

Phylogenetic tree in Mr. Bayes
(Ronquist *et al.*, 2011)

ML ancestral **habitat reconstruction** in
Mesquite (Maddison & Maddison, 2016)

Ultrametric tree under birth-death model
in BEAST (Drummond *et al.*, 2012)

Leaf anatomy analyses

Transverse sections and abaxial surfaces of
leaflets from healthy plants in Botanic
Garden were observed

Histochemical staining and Scanning Electron
Microscope were used

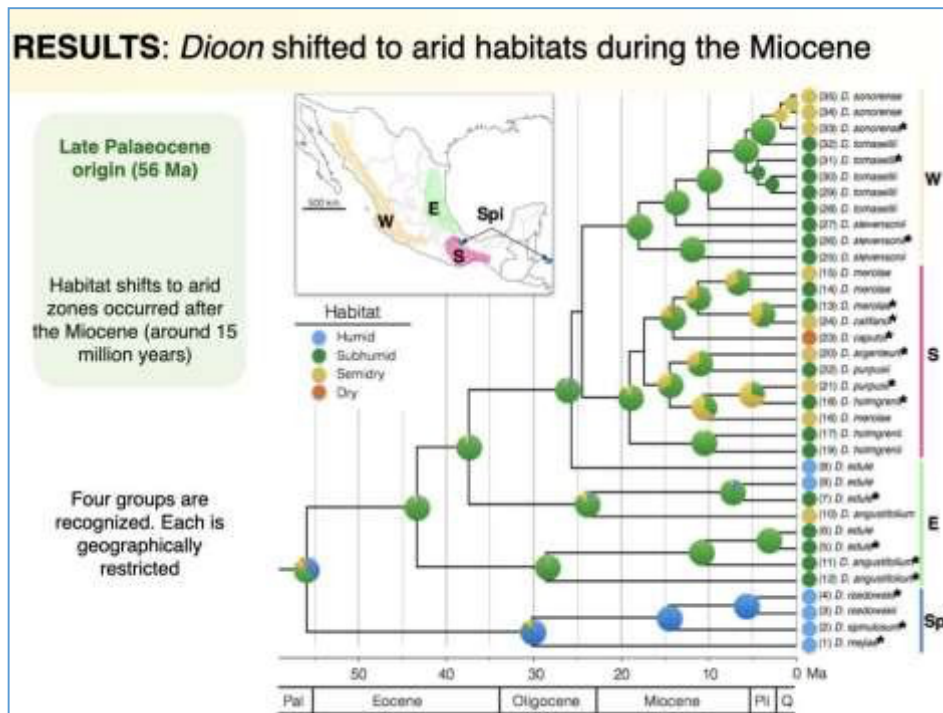
Taking photos and measuring traits
(10 repetitions each plant)

Obtaining measurements

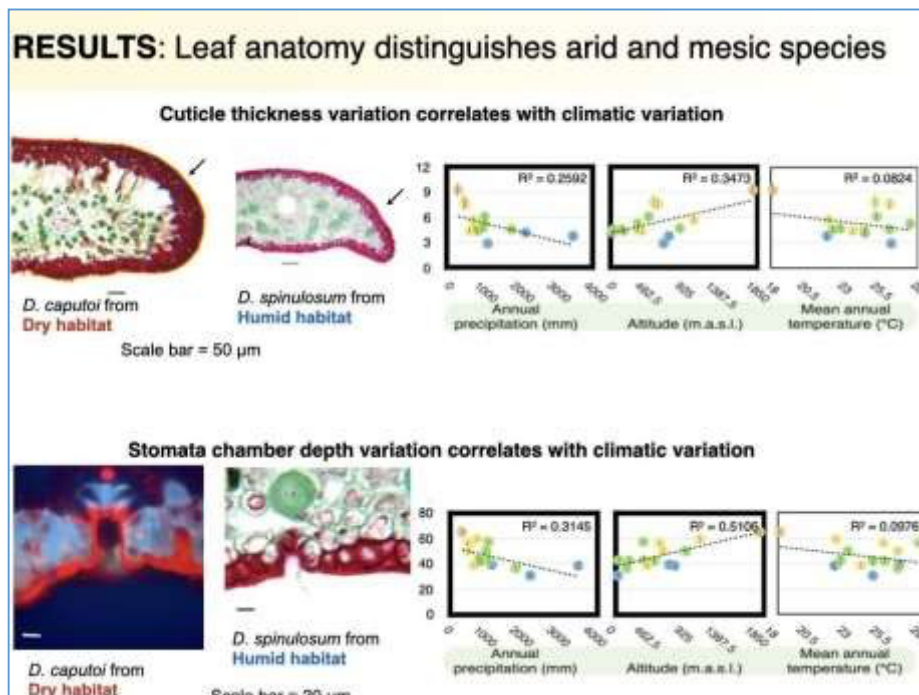
Anatomy vs. habitat correlation tests

Cross-species correlations

4th slide : Hasil dan Penjelasan Singkat



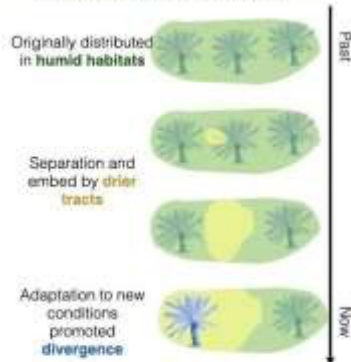
5th slide: Hasil dan Penjelasan Singkat



6th slides: Diskusi dan Kesimpulan

DISCUSSION: *Dioon* has gained adaptations to aridity

Expansion of arid zones might be promoting divergence in *Dioon*. I propose this model of evolution in cycad plants



Phylogenetic analyses and correlation tests suggest a phylogenetic tendency to evolve towards arid habitats in *Dioon*

Stomatal and cuticular characters might be gained adaptations against water stress

This should be studied in detailed at the interpopulation level. For example, some cycad populations in Northwestern Mexico can be good models to this study



D. sonorense in Sonoran desert, Nov. 2016

CONCLUSION: Aridity has been an important promoter of diversification in cycads. This study provides novel evidence in nature.