

## UNDIFFERENTIATED CELLS OF *GARDENIA JASMINOIDES* AS A POTENTIAL SUSTAINABLE SOURCE OF FOOD INGREDIENTS

Plumari, C<sup>1</sup>; Martinez, A<sup>2</sup>; Rinaldoni, A<sup>2</sup>; Orden, A<sup>2</sup>.

<sup>1</sup> Facultad de Química, Bioquímica y Farmacia, Universidad Nacional de San Luis (UNSL), D5700ANW San Luis, Argentina.

<sup>2</sup> INTEQUI-CONICET, UNSL.  
aaorden@unsl.edu.ar

### INTRODUCTION & AIM

#### CELLULAR AGRICULTURE

*In vitro* production of plant biomass under controlled conditions, reducing environmental impact and minimizing dependence on climate and geography.

#### *GARDENIA JASMINOIDES*

Widely distributed species with a history of medicinal use and a rich phytochemical profile, including flavonoids, phenolic acids, and iridoids.

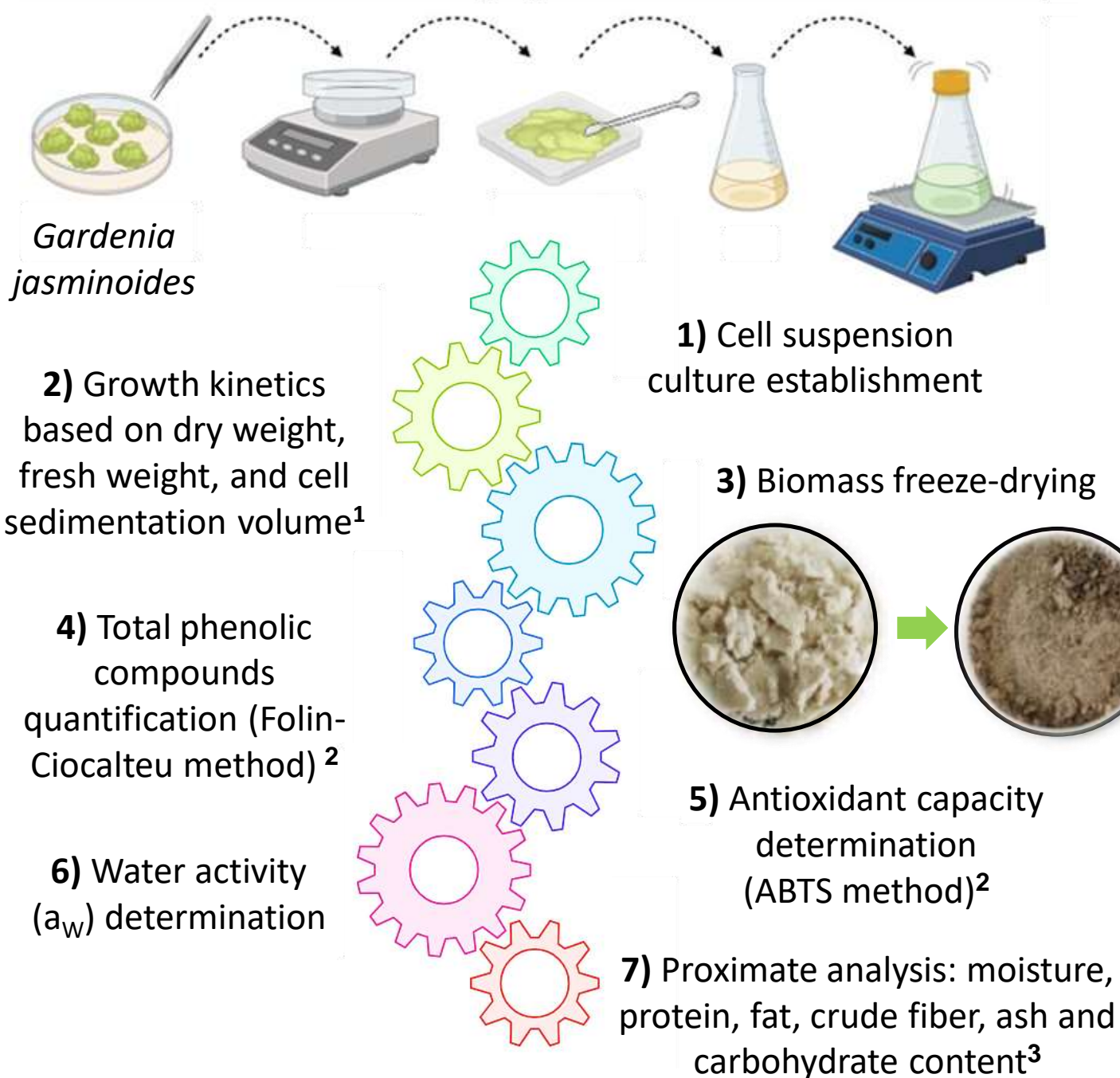
#### IN VITRO BIOMASS PRODUCTION

Source of nutrients and valuable phytochemicals with antioxidant, anti-inflammatory and neuroprotective properties.

#### AIM

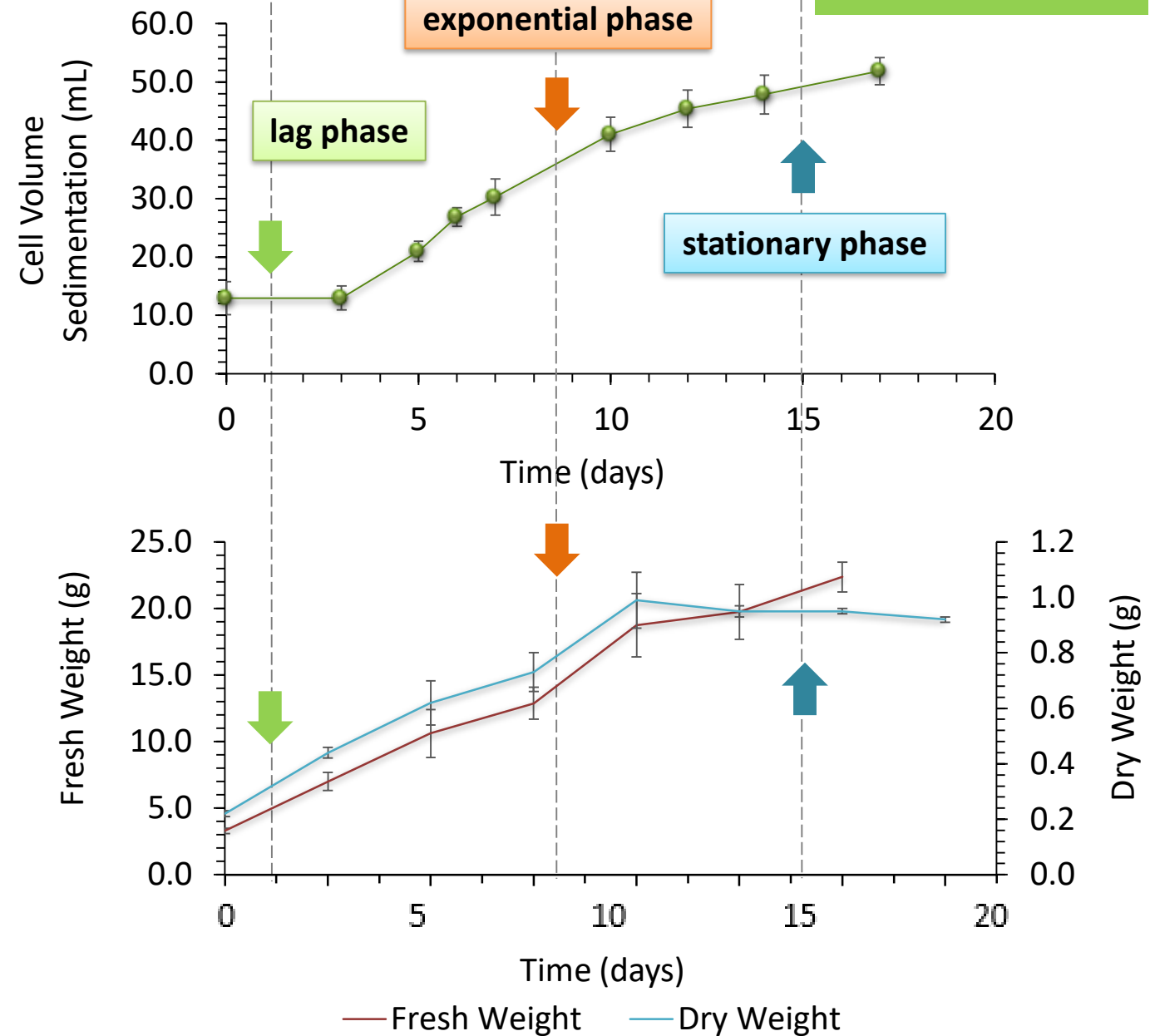
Explore *in vitro* cultures of *Gardenia jasminoides* as a potential sustainable source of functional food ingredients

### METHODS

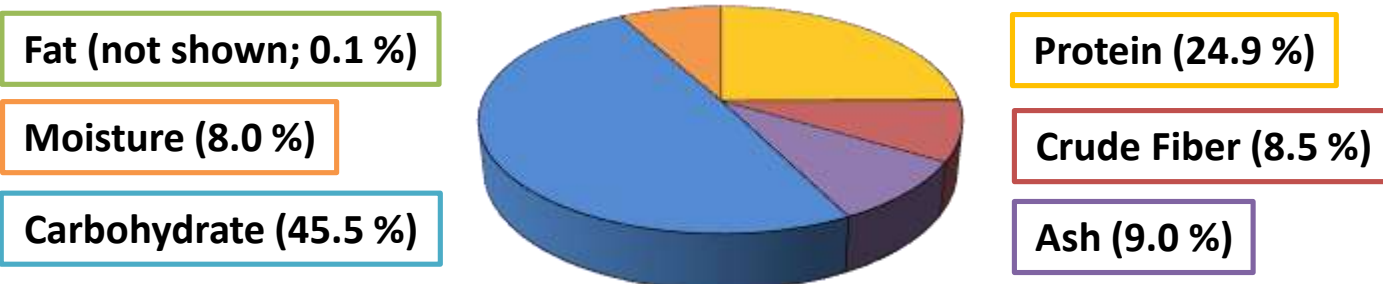


### RESULTS & DISCUSSION

#### 1. GROWTH CURVES



#### 2. PROXIMAL ANALYSIS



#### 3. BIOMASS YIELD, PHENOLICS & WATER ACTIVITY

- ✓ Maximum biomass yield (g fresh weight/L): 265.0
- ✓ Maximum biomass yield (g dry weight/L): 14.5
- ✓ Duplication time (days): 8.4
- ✓ Total phenolic content (mg GAE/g fresh weight):  $6.1 \pm 1.4$
- ✓ Antioxidant capacity ( $\mu\text{mol TE/g}$ ):  $18.20 \pm 0.59$
- ✓ Water activity ( $a_w$ ) at 25 °C: 0.37

### CONCLUSION

The results support the use of *G. jasminoides* undifferentiated cells as a sustainable, bioactive, and nutritionally valuable ingredient for functional food applications.

### FUTURE WORK

Functional properties of biomass are essential to assess its impact on foods. Meticulous food safety studies must also be conducted, ensuring its safety for human consumption.

### REFERENCES

- 1-Mustafa, N. R. et al. (2011). *Nature Protocols*, 6(6), 715–742.
- 2-Martinez et al. (2023). *Plant Foods for Human Nutrition*, 78(4), 742-747.
- 3-Lee, J. et al. (2005). *Journal of AOAC international*, 88(5), 1269-1278.