

# Propagation, upkeep, and impact on mental health and classroom/workplace success of

## *Dracaena trifasciata*, *Chlorophytum comosum*, and *Philodendron hederaceum*

### Abstract

- Plants have a beneficial impact on classroom and work environments by reducing mental and physical fatigue, increasing satisfaction, and lowering overall generalized health complaints
- The major component of ornamental plant's effects is due to their ability to remove harmful toxins from the air
- The ornamental heartleaf, spider plant, and snake plant provide an accessible, non-demanding, and amazing opportunity to increase overall wellness for students

### Objectives

- In conjunction with Ogier Gardens: identify propagation and upkeep processes of select non-demanding plants students could take care of
- Promote student investment into ornamental plant life by researching and explaining benefits to students while identifying and providing methods of propagation for Ogier Garden staff to create selected plants more available for student use



Figure 1. Heartleaf (*Philodendron hederaceum*) (2)



Figure 3. Snake plant (*Dracaena trifasciata*) (2)



Figure 2. Spider plant (*Chlorophytum comosum*) (2)

### Propagation

- All selected ornamental plants include same simple process of propagation
  - Slicing leaf at base
  - Leaving sample in water and routinely replacing it until sufficient root growth
  - Transferring to a soil mixture



Figure 4. Step 1: Cutting off a section of plant as close to its base as possible (1)



Figure 5. Step 2: Placing in container filled with water above the base and waiting for roots to sprout while changing water every 2-3 weeks (1)



Figure 6. Step 3: Transferring to a mixture of humus and soil (1)

### Upkeep

- Once settled in soil mixture, upkeep is simple
- Many can go days to weeks from being watered - overwatering being the main cause of decay in ornamentals! (7)
- While lighter areas suit ornamentals best, many still thrive at low light levels, such as the snake plant (6, 7)

### Impact on Mental Health and Workplace Success

- Each ornamental plant plays a unique role in purifying surrounding air (spider plant by itself being able to absorb 90% of ambient formaldehyde (a carcinogen) (4))
- With an increase in local air quality, general health complaints decrease - green workplaces seeing higher rates of employee satisfaction, motivation, retention, and positive reaction to change and stress (4)
- Studies measuring impact of plants on classroom success have found a significant subjective increase in quality, a physiological foundation for it, and increased overall classroom performance (3, 5)

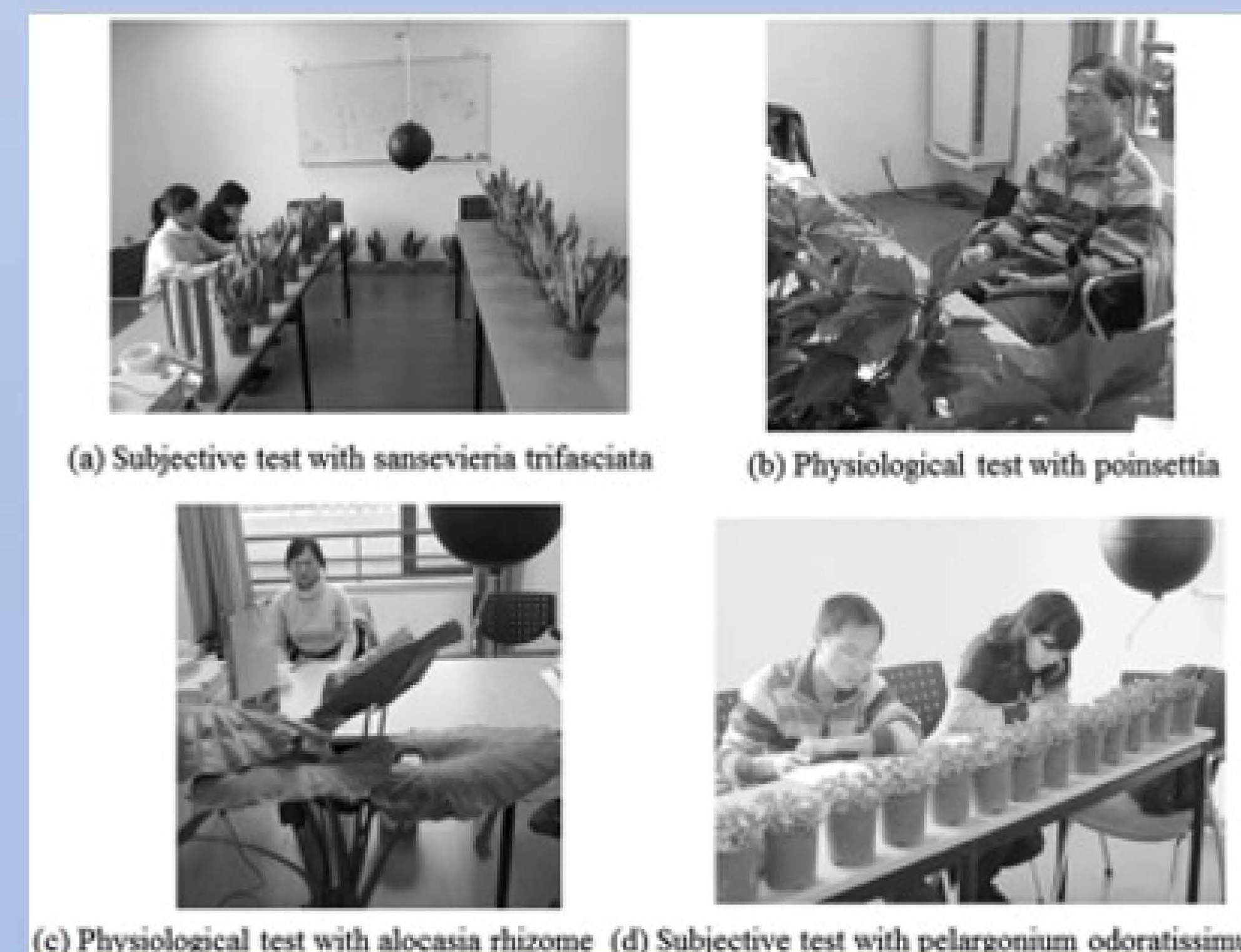


Figure 7. Students in Shanghai Jiao Tong University in China taking subjective and physiological tests on the impact of indoor plants (3)

### Impact on Classroom Success

- Studying the specific presence of heartleaf and snake plants, otherwise identical classrooms saw significant differences in behavior, engagement, satisfaction, and positive affect as students were exposed to more of the heartleaf and snake plants (5)
- Snake and heartleaf plant presence showed not only an increase in student performance and motivation, but measured a significant increase in student physiological comfort measured by EEG and respiration rates (3)

### Conclusions

- The heartleaf, snake plants, and spider plants are widely available, easily-propagated, low-maintenance plants with significant positive contributions to their local environment
- Integration of research on these specific ornamental plant species can motivate students to take up of these plants as a simple way of increasing physical and emotional comfort
- With simple propagation, the Ogier Garden can work to increase their stock of these plants, providing more opportunities for students to take care of them
- Combined, integrated information of propagation, upkeep, and positive local impact leads to a simple path of increased student wellness and performance

### References

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