



# **G043**

## **GESOLGEL™ MTC**

### **Low Acyl Gellan Gum**

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## **Introduction**

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Caisson Labs, Inc, is excited to announce the release of our newest gelling agent, GESOLGEL™ MTC. This low acyl gellan gum is specially designed to form a suitable growth matrix for many plant tissue culture media. It produces a very transparent, sparkingly clear matrix with a gel strength of at least 1000 g/cm<sup>2</sup>. With a working concentration of 2 – 5 g/L, users are able to easily achieve their preferred level of firmness with their preferred medium. This gellan gum is available in a wide variety of sizes.

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## **Comparative Testing**

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We understand that regular customers of Caisson Labs, Inc, may be interested in a comparison between our GESOLGEL™ MTC (G043) and our previously favored gellan gum, Gelzan™ (G024). We have extensively tested G043 to ensure it is a suitable alternative to G024. Customers can expect comparable performance between the two, and those growing woody plants may experience even better performance with G043. The procedure for and results of our comparative testing are outlined below.

Eight plant cell culture vessels were prepared using Murashige & Skoog Basal Salts with Macronutrients, Micronutrients, Vitamins and Glycine (MSP09) with 30 g/L sucrose (S011); 2 mL/L of a plant conservation product; and 2.9 g/L of either G043 or G024. Both gelling agents appeared white to off-white in their powder form. The solutions in the vessels were comparable in appearance.

The vessels were autoclaved at 121°C for 21 minutes, then allowed to cool in a laminar flow hood. Both products gelled at about the same rate, resulting in transparent gel in each vessel. The G043 gel had a faint yellow hue, while G024 was colorless. This difference did not affect the overall transparency.

Plant cell culture was performed using grape (*Vitis spp.*), potato (*Solanum tuberosum*), and wandering Jew (*Tradescantia zebrina*) in a laminar flow hood. No differences in consistency, firmness, or texture were observed between G043 and G024 during this procedure.

The vessels were then wrapped with Vessel Wrap (VWS01) for additional contamination prevention and placed side by side under grow lights at ambient temperature. The plants were allowed to grow for several weeks.

After six weeks, the grape and wandering Jew cuttings growing in G043 demonstrated more growth than those in G024, while the opposite was true for potato cuttings. These differences are observable in the comparison photos displayed in the following section. Overall, these gellan gums are extremely comparable.

## G043

### Comparison Photos

The following photos compare the plant growth between G043 and G024 six weeks after plant cell culture. In each photo, the vessel on the left contains G043, while the vessel on the right contains G024.

#### Grape

Both vessels were cultured with four cuttings of two to three nodes each.



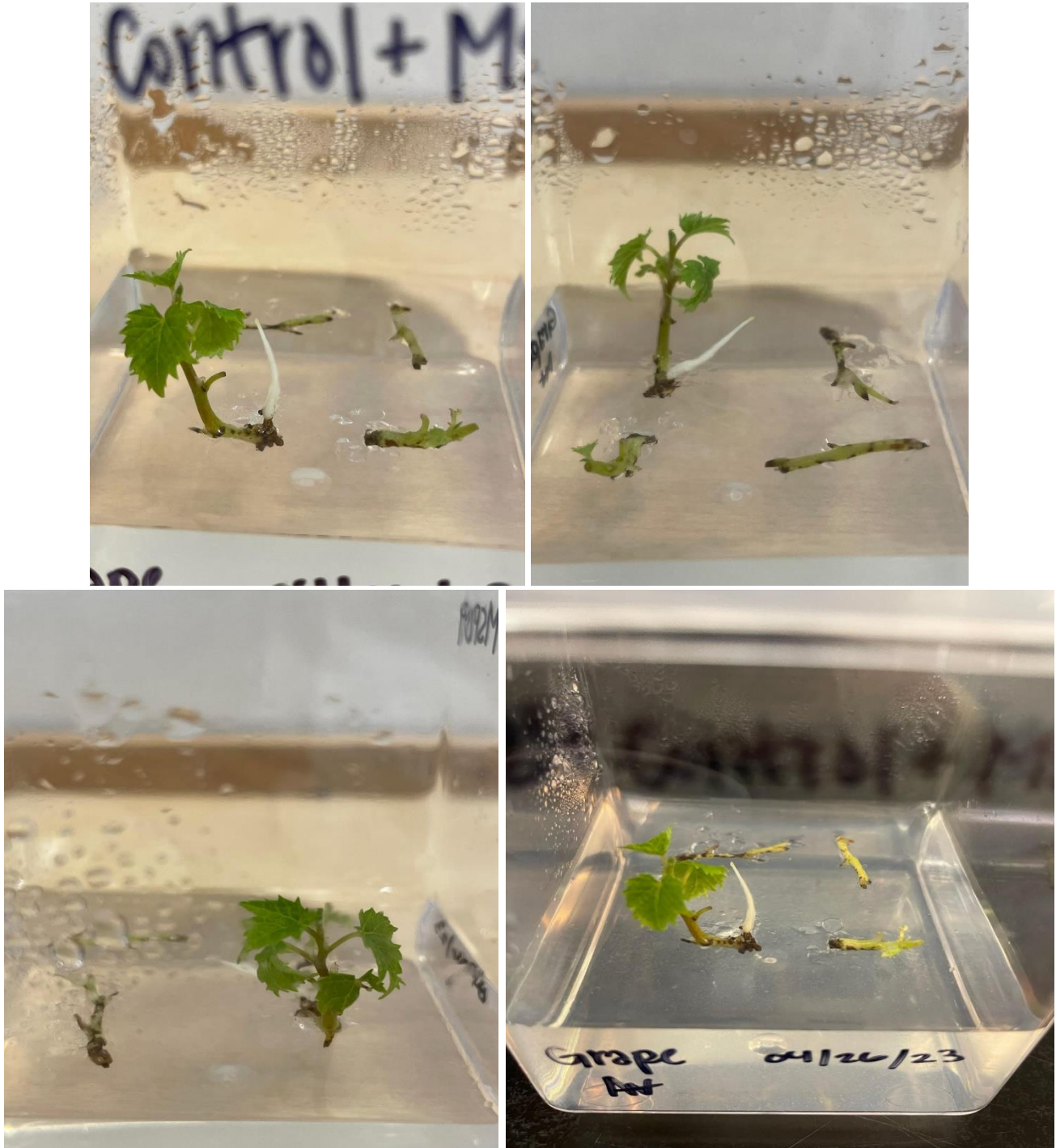
**Figure 1. Comparison of grape cuttings after six weeks of growth.** Cuttings in G043 grew taller shoots, longer roots, and larger leaves than those in G024.

**G043**



Figure 2. Close-up of grape cuttings in G043.

**G043**



**Figure 3. Close-up of grape cuttings in G024.**

## G043

### Potato

Both vessels were cultured with four cuttings of two to three nodes each.



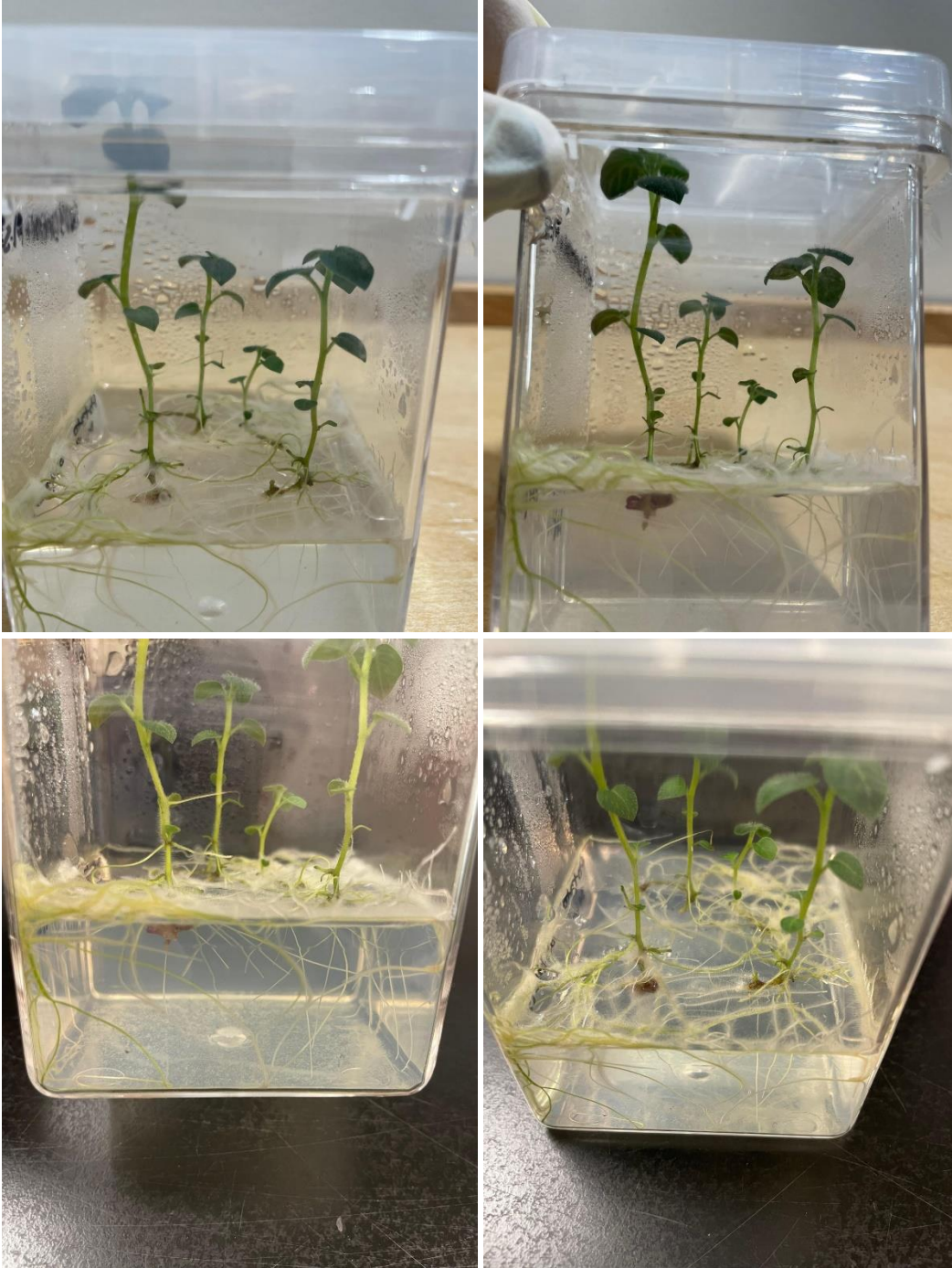
**Figure 4. Comparison of potato cuttings after six weeks of growth.** Cuttings in G024 grew taller shoots, longer roots, and larger leaves than those in G043.

## G043



**Figure 5. Close-up of potato cuttings in G043.**

**G043**



**Figure 6. Close-up of potato cuttings in G024.**

## G043

### Wandering Jew

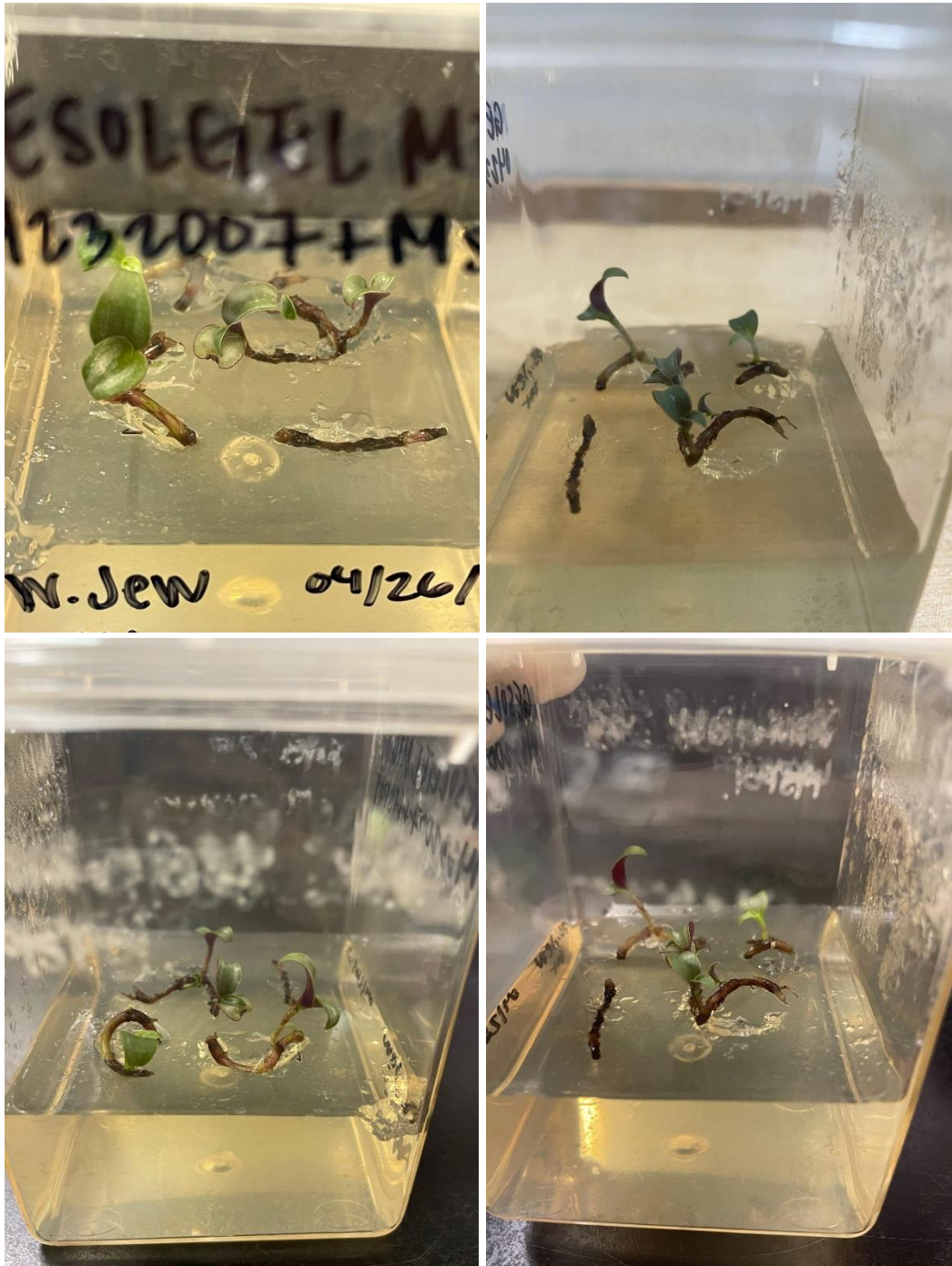
Both vessels were cultured with four 1-inch cuttings each.



**Figure 7. Comparison of wandering Jew cuttings after six weeks of growth.** Cuttings in G043 grew taller shoots, longer roots, and larger leaves than those in G024.

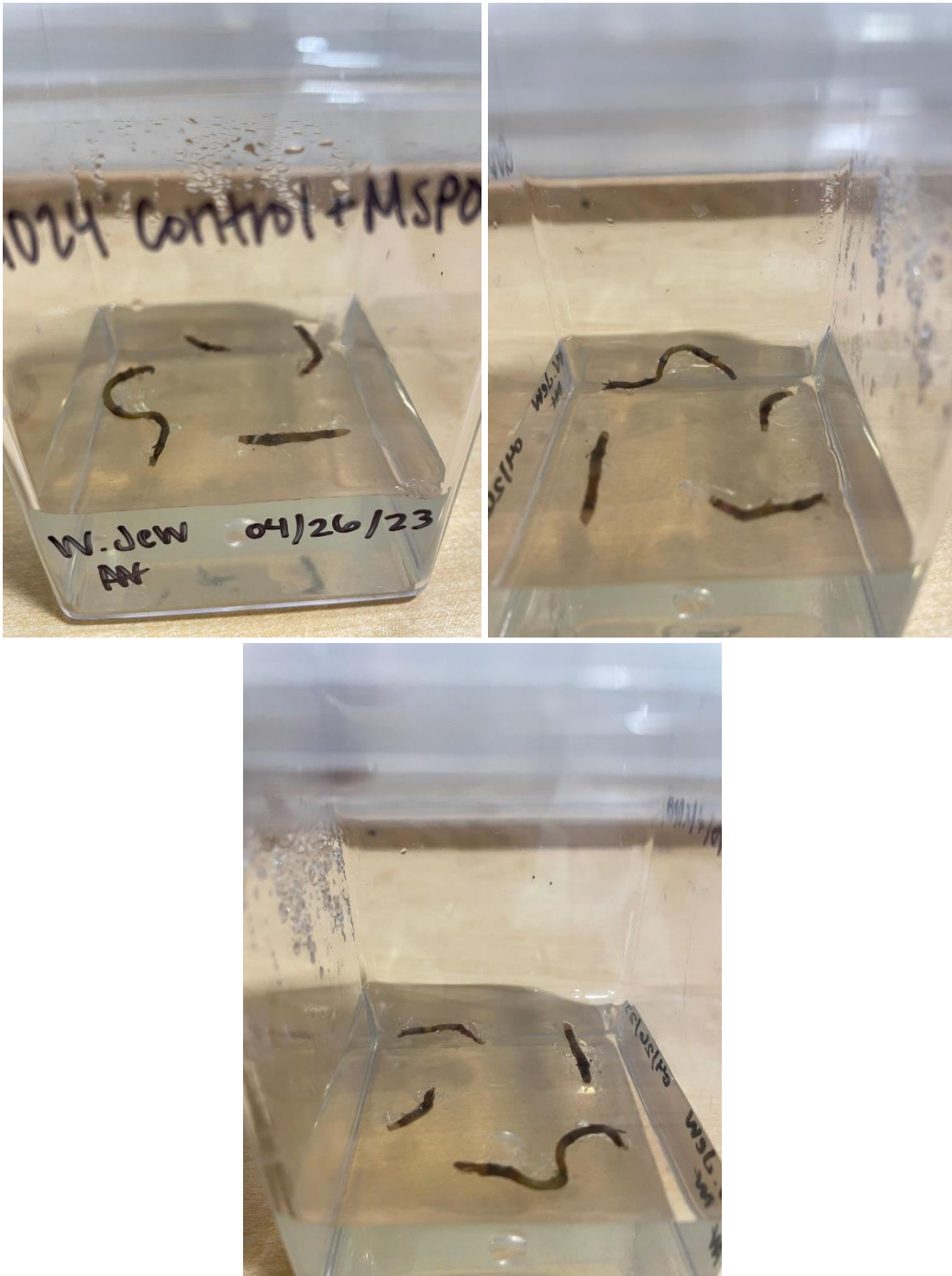


**G043**



**Figure 8. Close-up of wandering Jew cuttings in G043.**

**G043**



**Figure 9. Close-up of wandering Jew cuttings in G024.**



## **G043**

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### **Conclusion**

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Caisson Labs, Inc, is fully confident in our new gellan gum. With its suitability for a wide variety of plant cell culture media, excellent performance in vitro, and comparability to our previous gellan gum, we are confident G043 will meet our customers' needs.

To experience the benefits of G043 for themselves, customers are invited to contact our Customer Service team via email for a free sample. We look forward to hearing from you!