



A Method for Identification of Seaweed Samples With High Agar Yield and Gel Strength

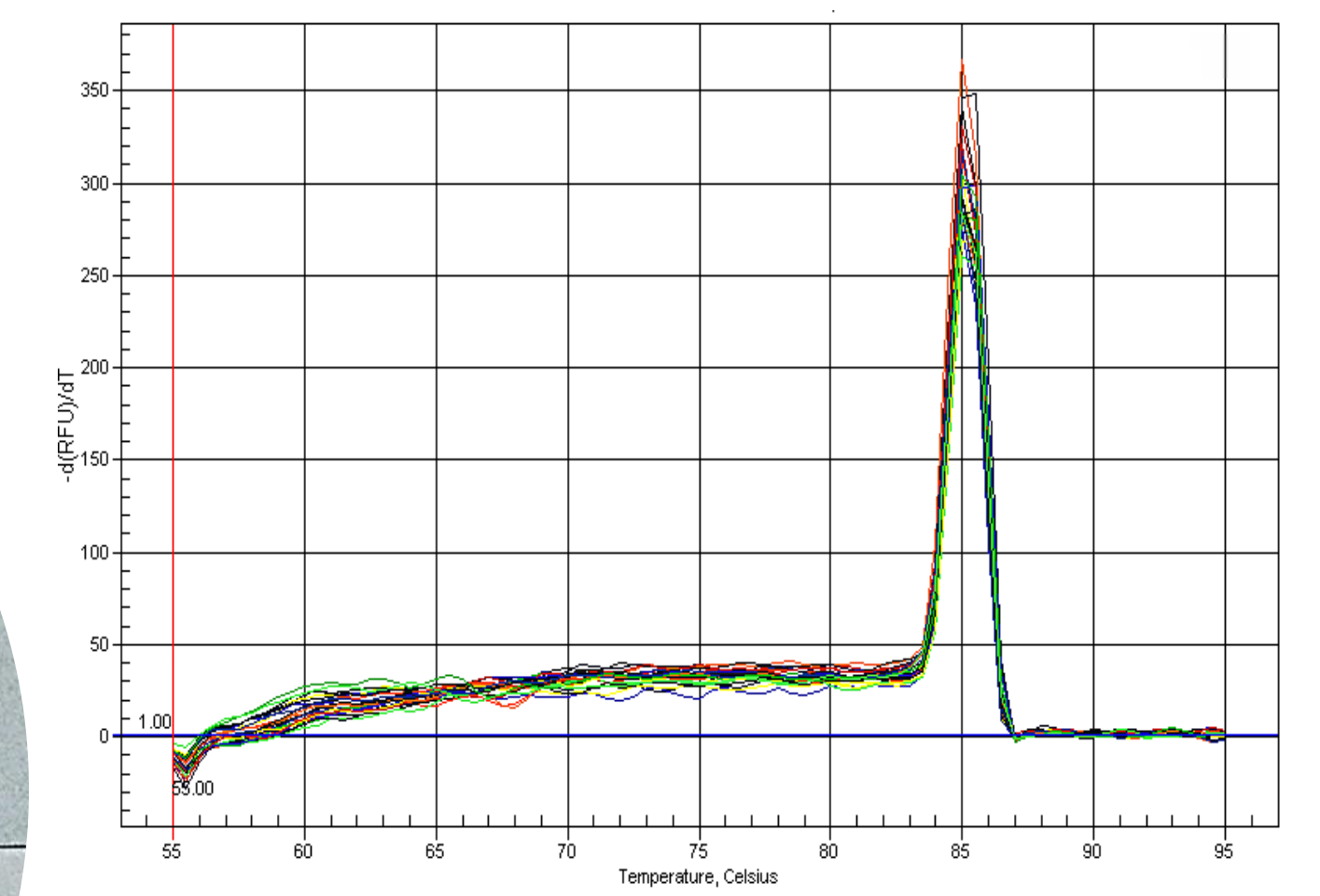
PATENT MY-185573-A & PI2018703653



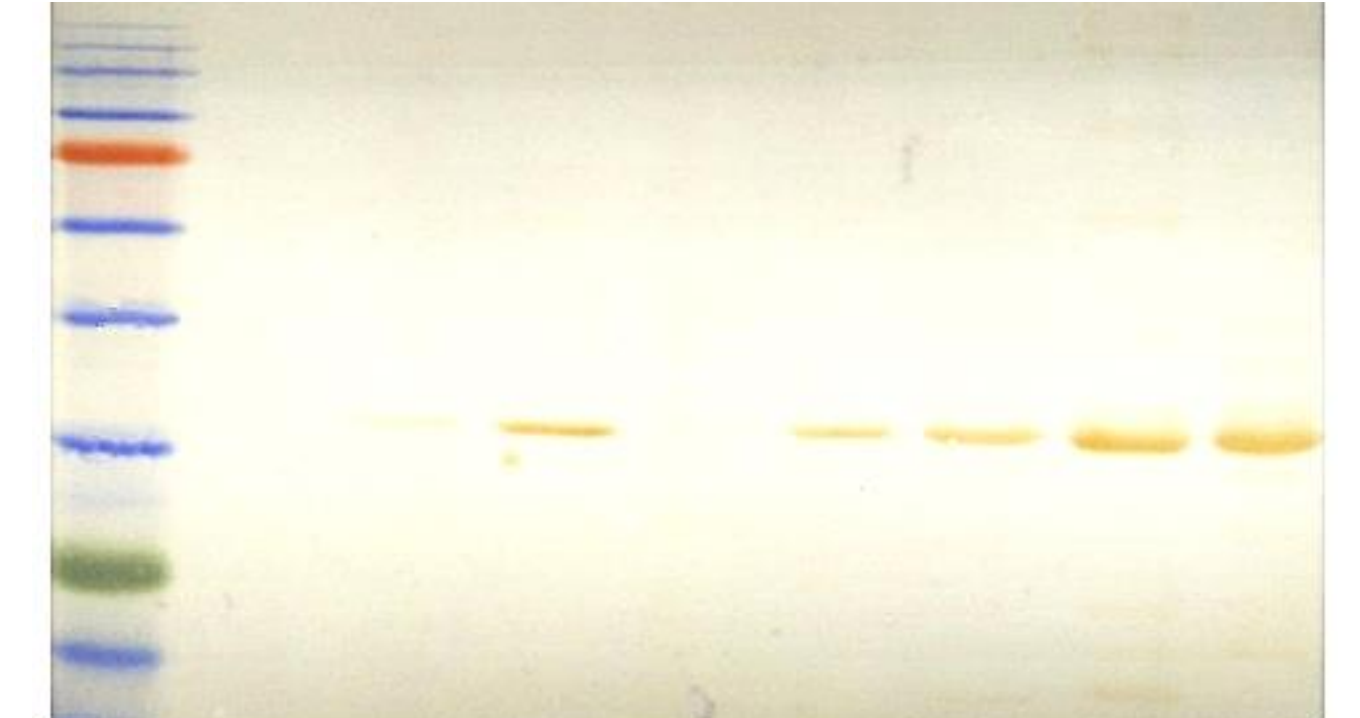
Gracilaria species



Transcript markers



Protein markers



BRIEF TECHNOLOGY

- A method for **identification of seaweed samples with high agar yield and gel strength** by using **expressed markers (transcripts and proteins)**.

CURRENT ISSUES

- Agar derived from the cell wall matrix of red seaweeds is the most expensive hydrocolloid which has wide applications in biological research, and in food, cosmetics and pharmaceutical domains.
- The yield and quality of agar determine its commercial and industrial value in phycocolloid market with gel strength as the main indicator for agar quality.
- **Selection of commercially potential seaweed samples and evaluation of agar properties with conventional method are ineffective** in terms of time and cost, labour intensive and requires a large quantity of raw materials.

INVENTIVENESS & NOVELTY

- These inventions involve **measurement of transcript abundance of transcript markers with quantitative reverse-transcription (qRT)-PCR using specific primers**, and **protein accumulation of protein markers by Western blot using specific antibodies**.
- The use of molecular markers (transcripts and proteins) that are associated with agar yield and gel strength could offer a **rapid and accurate screening tool needed for quick estimation of agar yield and gel strength in seaweed samples**.

USEFULNESS & APPLICATION

- Identification of seaweed samples with high agar yield and gel strength.
- Estimation of agar content and gel strength by using transcript and protein markers.
- Replace conventional method in the selection of commercially potential seaweed samples.

IMPACT OF THE PRODUCT / ADVANTAGES

- Feasible to be offered as a lab service or can be manufactured into a kit.

MARKET POTENTIAL

- Agar production in global industrial scale has increased 9600 tons (US\$ 173 million) in 2009 to 14,500 tons (US\$ 246 million) in 2015.
- Hence, the needs for transcript and protein markers and marker technology will logically increase according to the market size of agar industry.
- Seaweed providers: Malaysia, Indonesia, Philippines, China, Chile, Peru, Brazil, Mexico, South Africa etc.
- Seaweed manufacturers: Japan, China, United States of America etc.

TRL 4- Lab validation



Project Leader : Prof. Dr. Ho Chai Ling
 Dept./Faculty : Faculty of Biotechnology and Biomolecular Sciences
 Email : clho@upm.edu.my
 Phone : +603- 9769 7475
 Expertise : Plant Molecular Biology

#UNSDG



www.sciencepark.upm.edu.my