

International Cooperative Education and Career
Development (ICECD) program
at Mie University and Milbon Co., Ltd.

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Internship at Laboratory of Crop production and Ecology

Graduate School of Bioresources Mie University

28 April-19 May, 3-21 June 2013

To study about analysis. I learned equipments analysis such as High-performance liquid chromatography (HPLC) and Aluminum . Moreover, I studied the Overcome Seed Dormancy (nut) of Jatropha seed and Rice growth measurement.

1. Overcome Seed Dormancy (nut) of Jatropha seed

I was studied Overcome Seed Dormancy (nut) of Jatropha seed By using Scarification method, for fast germination with senior students.

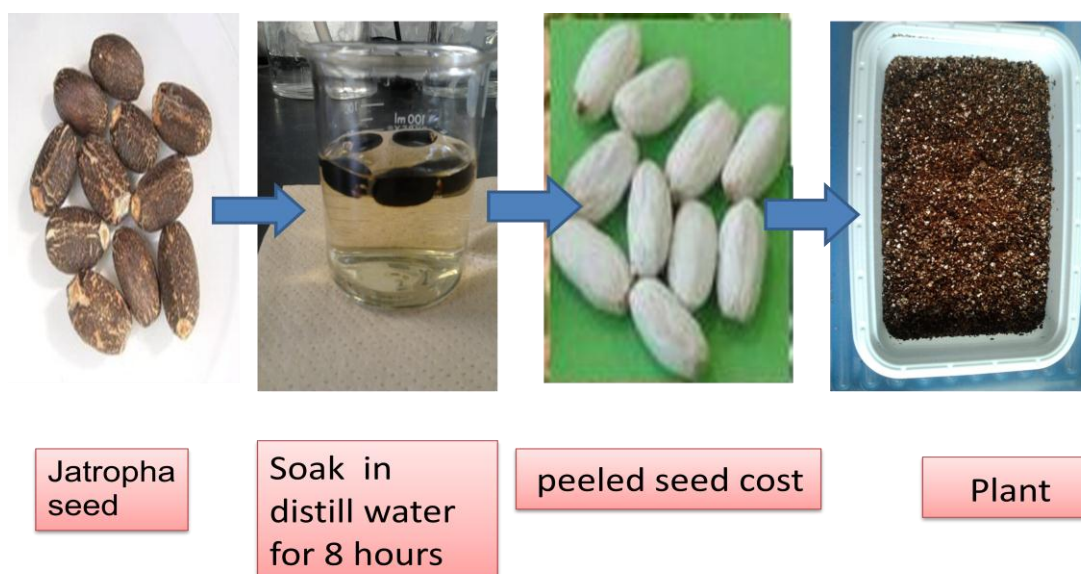


Fig. 1 Scarification method

2. Aluminum analysis

I was studied preparation Ammonium Acetate, Aluminon, Mercapton Acetic acid and studied how to use spectrophotometer for Aluminum solution analysis with Ms. Kiba, because she is researching in this project.

For the experimental procedure, used Aluminon 20% (2 ml), Mercapton Acetic acitic (0.5 ml), Ammonium Acetate (10 ml), and Al solution (1 ml) then adjusting the volume with distilled water to 50 ml. After that put the solution into boiling water for 2 minutes. Take out and wait for two hours and measure by Spectrophotometer.

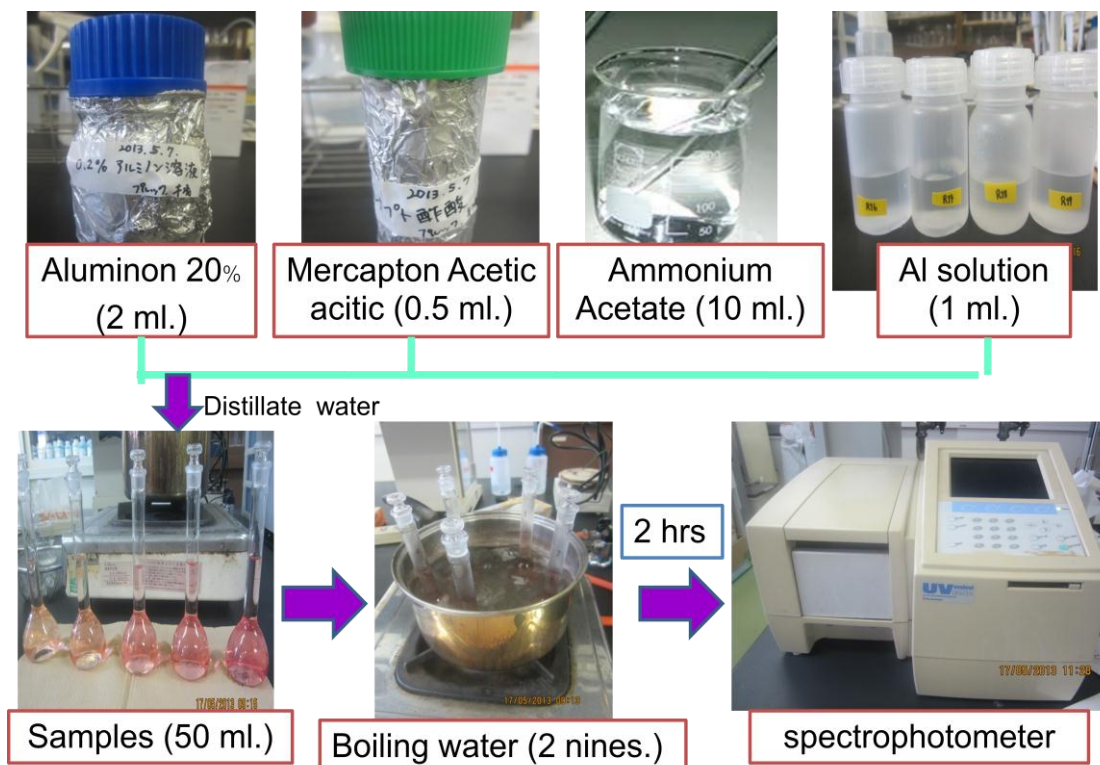


Fig. 2 Aluminum analysis method

3. Rice growth measurement

I was studied how to Measure height and chlorophyll by using Chlorophyll meter and Chlorophyll Fluorometer for Rice growth measurement with all laboratory members.

4. HPLC analysis

Practice analysis Plant nutrients in root, stem and leaves of Sago palm by using High-performance liquid chromatography (HPLC).

The HPLC can analyzed the nutrients by cation and anion, such as cation is Na Ca, Mg and anion is F, Cl.

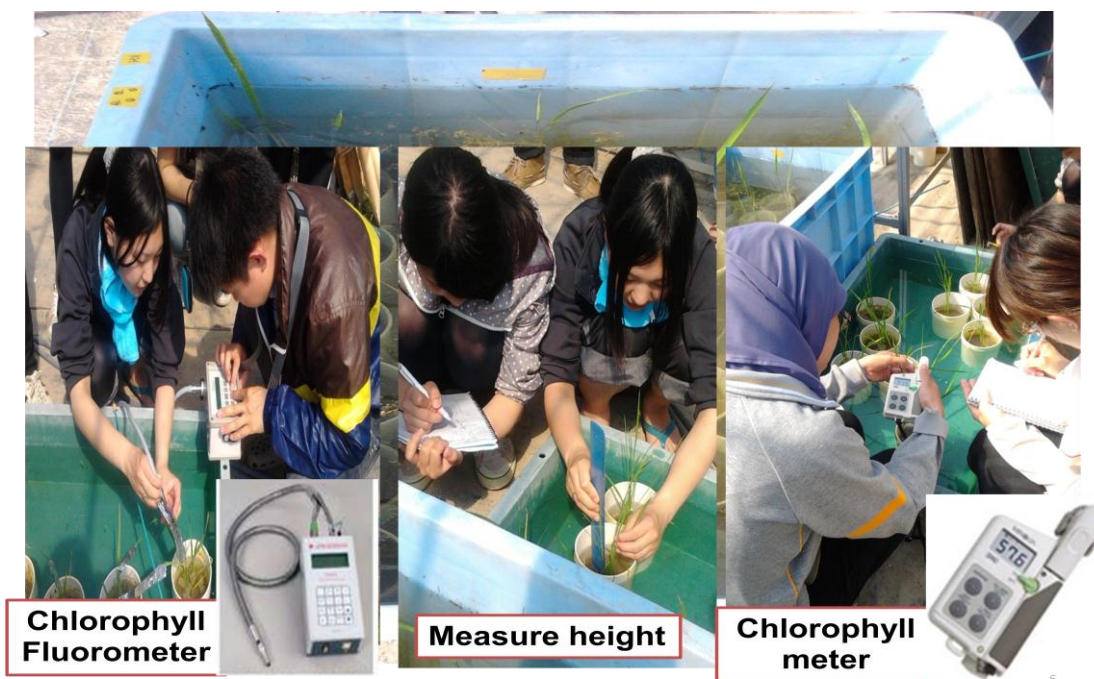


Fig. 3 Rice growth measurement

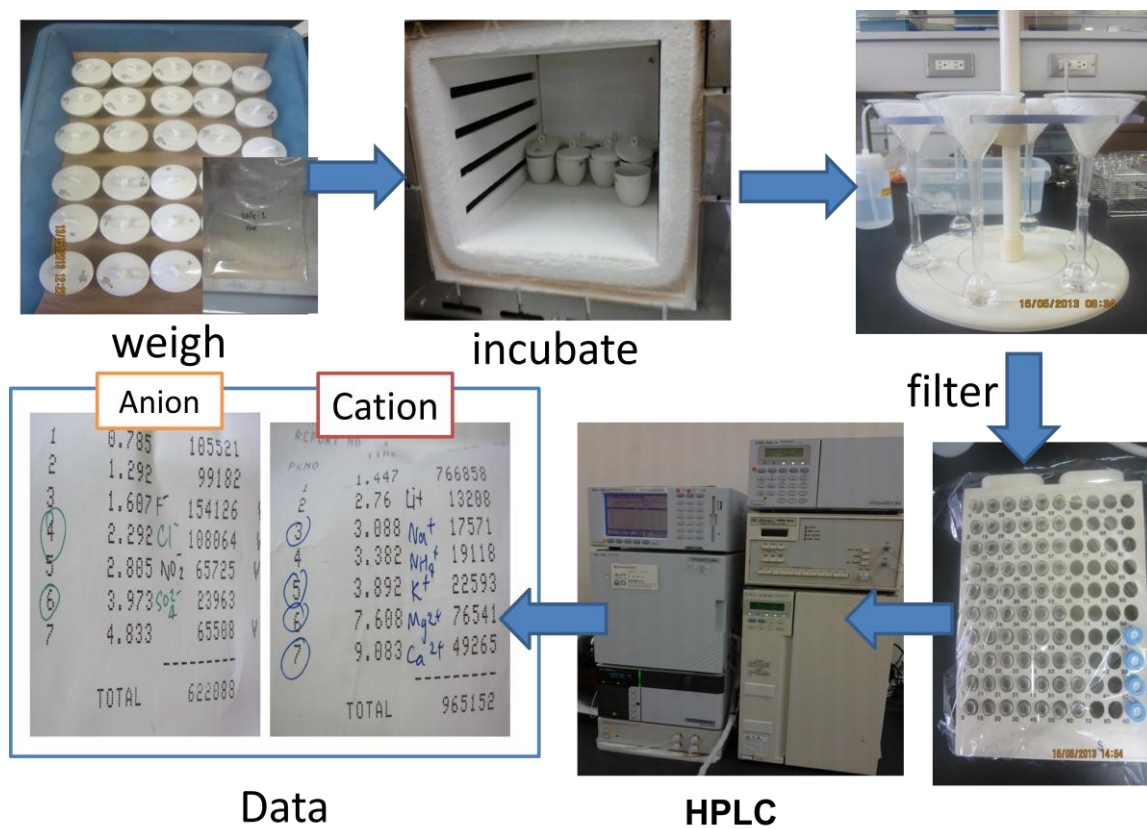


Fig. 4 Analysis Plant nutrients method

5. Summary

In Mei University, I studied how to control many equipment that I had never used before. In future, if I have to use again, I can control these equipment. Cleaning room time, all members have to help clean up. Senior student will teach how to use the equipment in laboratory to new member. All members in laboratory were be kind and friendly with me.

Internship at Milbon Co., Ltd. Yumegaoga Plant

20 - 31 May 2013

The Milbon Company is manufacture of hair chemicals product such as shampoos, treatments, hair styling chemicals, hair coloring chemicals and perming appliances.

I learned Producing Process at Producing Department and Emulsion, Emulsification method, testing product such as Shampoo, hair treatment, hair care, hair wax and water gel at Technical Development Center



Fig. 5 Producing Department



Fig. 6 Technical Development Center

Producing Department

Producing Process follow by

1. Weighing process

The weight ingredients controlled by computer. It can be no error when retrieving ingredients as they are all regulated by bar codes.

2. Mixing process

Weighed ingredients brought from the automated to the dissolved in a tank. After agitation, the ingredient are move to the stock tank.

3. Storage process

After mixing process, the product was weighed for checking the total weight and compare with before mixing step. After that, it was kept in container (approximately 2-3 days) for filling the package.

4. Filling process

The product was contained in the package by using automatic system.

5. Packaging process

After filling step, the package of product was baled in the box and transferred to the warehouse. baled in the box and transferred to the warehouse.



Fig. 7 Weighing room



Fig. 8 Mixing tank



Fig. 9 stock tank



Fig. 10 Filling room



Fig. 11 Packaging process

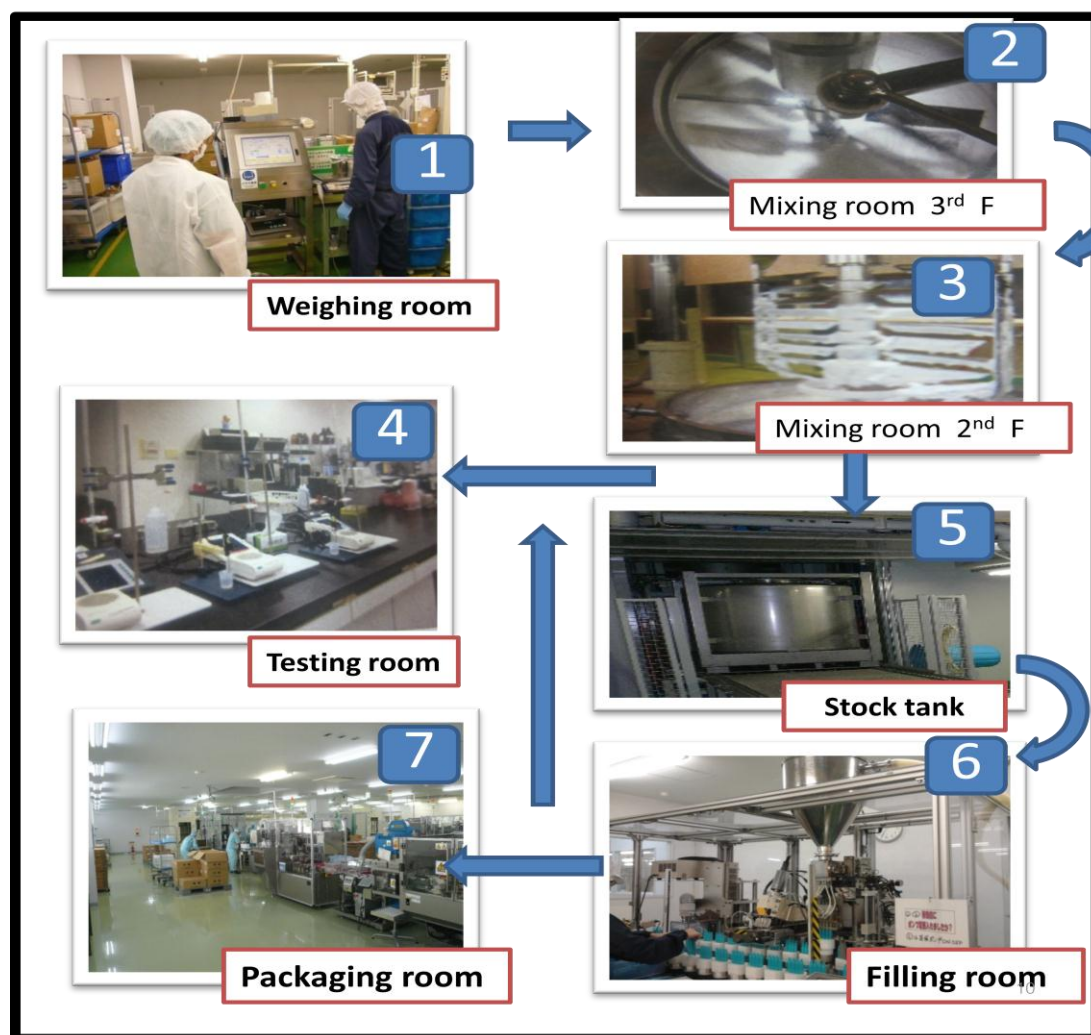


Fig. 11 Producing Process

Technical Development Center

Emulsion

By making an emulsion, one can mix two liquids that ordinarily do not mix well, such as oil and water.

Typical emulsification method

1. Agent in oil method

The emulsifying agent was added in oil. After that, water was added in the mixture solution. The water in oil emulsion was obtained.

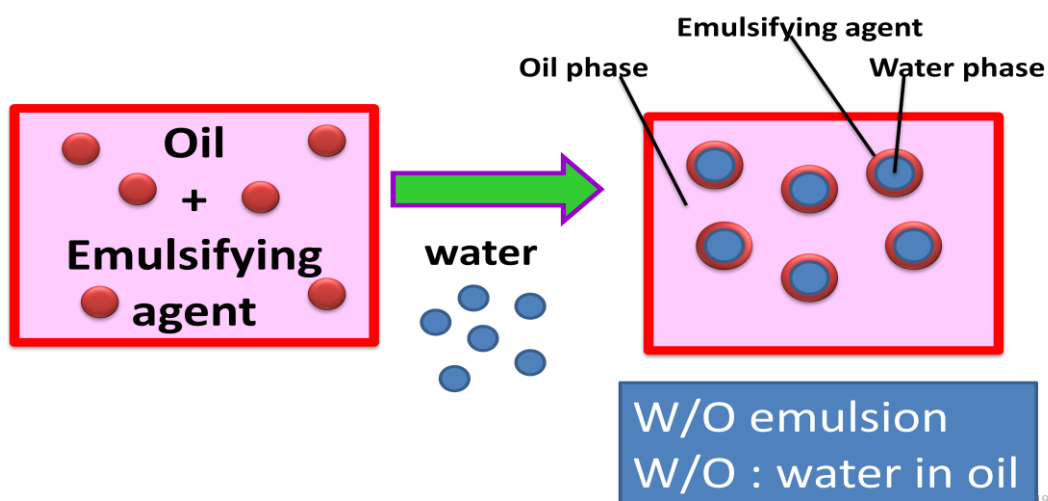


Fig. 12 Agent in oil method

2. Agent in water method

The emulsifying agent was added in water. After that, oil was added in the mixture solution. The oil in water emulsion was obtained.

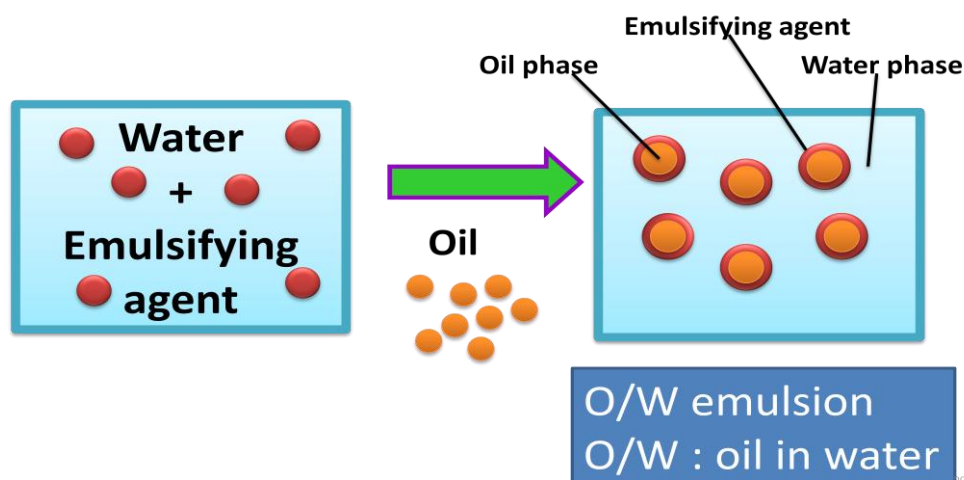


Fig. 13 Agent in water method

3. Soap emulsification method

The oil was mixed with fatty acid after that alkaline solution (ex. NaOH) was added in the mixture. The oil in water emulsion was obtained.

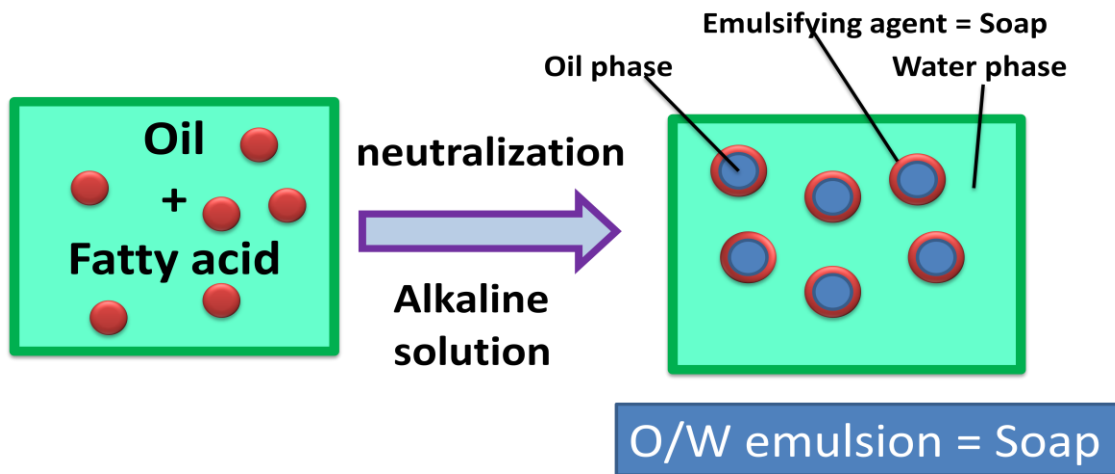


Fig. 14 Soap emulsification method

4. Phase inversion emulsification method

The oil was mixed with emulsifying agent. After that, the water was added in the solution. When the temperature was decreased, the water in oil emulsion was changed to the oil in water solution.

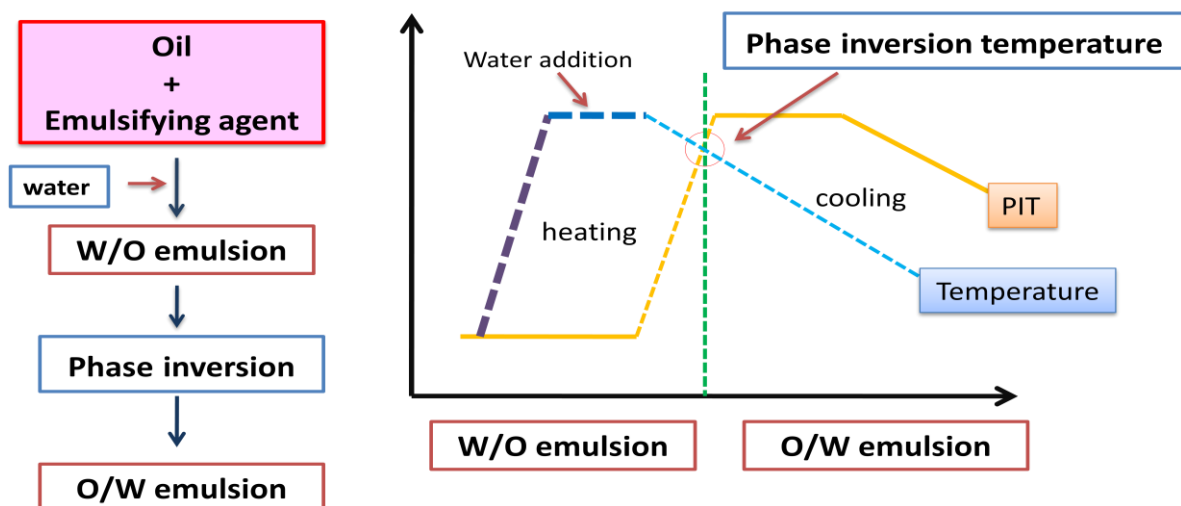


Figure 15. Phase inversion emulsification method

5. Liquid crystal emulsification method

The oil was mixed with emulsifying agent after that water was added gradually. The solubilized solution was changed to liquid crystal, gel and oil in water, respectively.

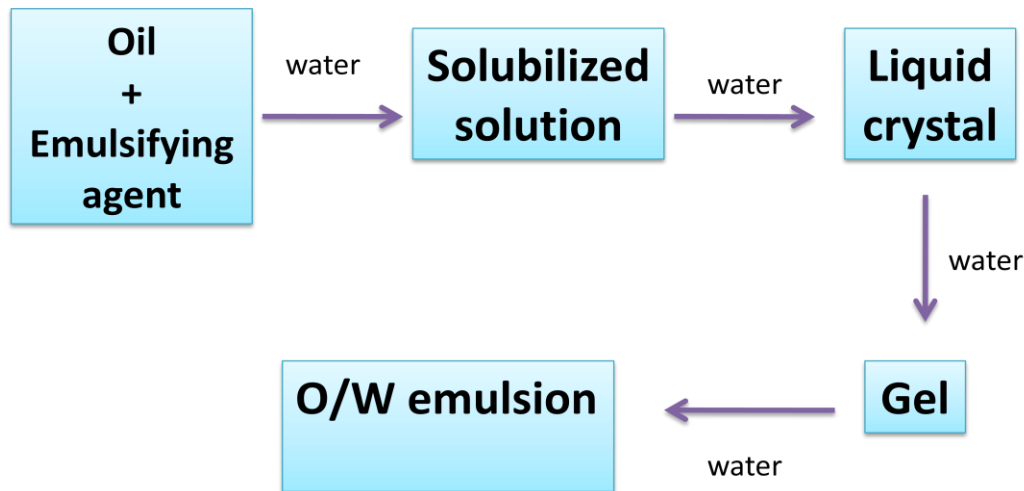


Fig. 16 Liquid crystal emulsification method

Testing product

1) Practical training: Hair care

Choosing the mixing procedure is important to produced Hair care. In here, they compared the Turbine (Process A) and Three sheets shuttlecock (Process B) in mixing procedure to produced Hair care. Turbine and Three sheets shuttlecock mixing which procedure can show the result of solftly Hair care.

The result shoes that the Three sheets shuttlecock mixing procedure can get more soft Hair care than of the Turbine mixing procedure.



Fig.17 Hair care product

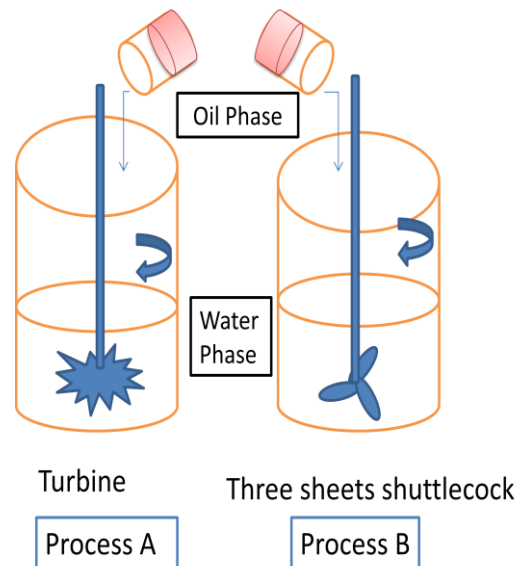


Fig.18 Hair care method

2) Practical training: Hair wax

Choosing the mixing procedure is important to produced Hair wax. To compared the Turbine (Process A) and Three sheets shuttlecock (Process B) in mixing procedure to produced Hair wax. Turbine and Three sheets shuttlecock mixing which procedure can show the result like of sticky fibers.

The result shoes that the Three sheets shuttlecock mixing procedure can get more sticky fibers than of the Turbine mixing procedure.



Fig.19 Hair wax product

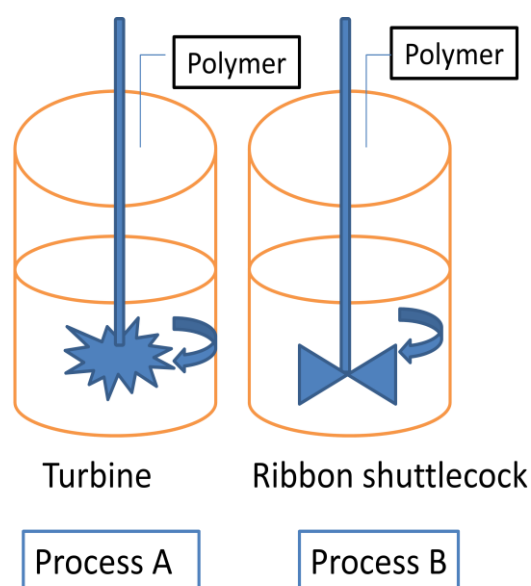


Fig.20 Hair wax method

3) Practical training: Water gel

The rate of adding materials into the mixing is important to produced Water gel. To test by using different rate of adding materials: process A is fast adding and process B is slow adding. After the test the process A show the best result that can divided the Water gel to 2 layers.



Fig. 21 Water gel product

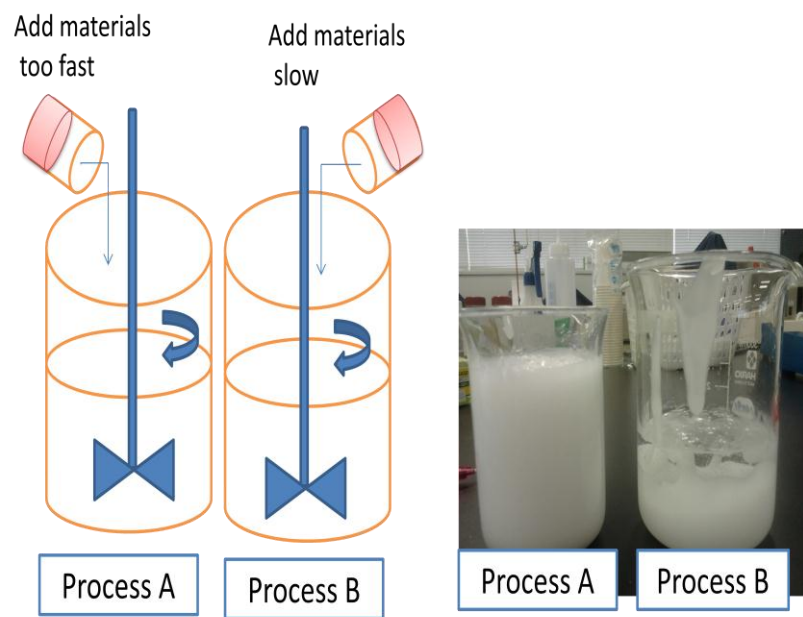


Fig. 22 Water gel method

Conclusions

I studied how to make shampoo, treatment, hair care, hair wax, and water gel. I got many knowledge Producing process, Developing process, Testing process.

In Milbon company, all members were be kind and friendly with me. Although everyone is busy, they were taking the time to explain the processes to me. Including product testing, so I have learned.



Fig. 23 In Milbon All members

Excursions



Fig. 24 Awaji earthquake museum



Fig. 25 Ueno castle



Fig. 26 Ninja show



Fig. 27 Baseball Match



Fig. 28 Iga city Hall



Fig. 29 Interview

Acknowledgement

Many people deserve a thank you for their support during my ICECD program, and I already apologize to whomever I am forgetting in the following list. First, I would like to thank Prof. Dr. Hiroshi Ehara, for accepting me to participate in ICECD program. Then, I have to thank Prof. Dr. Hiroki Hori, Mr. Hohei Nakai, Mr. Teruo Murata, Mr. Hirota Toshihito, Mr. Tateishi Akihiro, all staffs of CIER, all staffs of Milbon Co., Ltd., and all laboratory's members.