



**International
Seminar of
Science and
Applied Technology**

POLBAN 2026 POSTER EXHIBITION

POSTER GUIDELINES

<https://issat.polban.ac.id/2026/>

*“Digital Transformation and Green Innovation for
Sustainability Development”*

14 October 2026, Politeknik Negeri Bandung

Poster Submission Deadline

18 September 2026

<https://bit.ly/issat-poster-2026>



Poster Contents Requirements

INTRODUCTION

Research background and benefit

METHODS

Data and Process

RESULT AND DISCUSSION

Show the products, advantages, and constrains research.

CONCLUSION

Research conclusion and potential for next research.

ACKNOWLEDGEMENT

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REFERENCE





Poster Requirements

SIZE

Posters are made in A1 size

FILE FORMAT

Files are uploaded in pdf format

LANGUAGE

Poster content is in English

LAYOUT AND DESIGN

Portrait layout with a neat and attractive design

LOGO

Include the ISSAT logo on the poster, can be downloaded at <https://bit.ly/logo-issat>



Poster Example

Enhancing hand hygiene practice in the Post Anaesthetic Care Unit (PACU) 2018

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Fiona Stanley Hospital

Progressive Attitudes & Commitment in Understanding the importance of hand hygiene in PACU

For all the best we touch, hand hygiene is at the heart of care

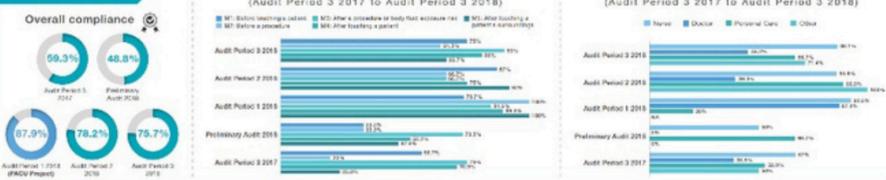
Introduction

- Post Anaesthetic Care Unit (PACU) clinical audits showed compliance with the WHO's 5 Moments for Hand Hygiene¹ was at 50% in period 3, 2017
- The National benchmark for hand hygiene compliance is 80%
- The low compliance rate signified potential risks of cross-contamination and exposure of pathogens between patients, staff and clinical environment
- A collaborative approach to improve compliance formed between Education and Infection Prevention and Management

Objectives

- Understand the barriers in PACU
- Share knowledge and facilitate multidisciplinary discussions
- Identify motivations and strategies for improvement
- Motivate staff to pursue excellence
- Establish a simulated learning environment
- Create a collaborative respectful space
- Seek commitment from staff to sustain practice

Results



Conclusion

- Enhanced communication and collegial support has created an environment where staff are comfortable to advocate for their patients, share their knowledge and promote patient and staff safety. Continued scenario-based training will ensure sustainability of the Hand Hygiene Project
- Using a range of evidence-based knowledge translation techniques engages staff and achieves practice change

Recommendations

- Create a video to show hand hygiene in practice in open-planned areas
- Create a template of this activity to enable ease of replication in other areas
- Continue scenario-based hand hygiene education
- Develop collaborative projects around workflow and clinical hardware
- Don't be shy to use creativity and humour in presentation of subject matter to establish engagement and participation

Locally Inhibition Of Orthodontic Relapse by Injection Of Carbonate Apatite-advanced Platelet-rich Fibrin In Rabbit

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Introduction

Relapse is considered a significant failure after orthodontic treatment. Stimulation of bone formation and inhibition of resorption is believed could effectively prevent the relapse [1]. In response to release receptor activator of nuclear factor- κ B ligand (RANKL) expressions will increase, while osteoprotegerin (OPG) will decrease [2]. Carbonate hydroxyapatite (CHA) is an ideal bioactive candidate for enhancing bone remodeling since it potential to raise the concentration of Ca²⁺ & PO₄³⁻ ions [3]. Meanwhile, advanced platelet-rich fibrin (aPRF) contains high levels of growth factors that play a central role in bone remodeling and expected to have the ability to prevent relapse [4]. This research was intended to investigate the effect of hydrogel CHA-aPRF in preventing orthodontic relapse.

Experimental

Preparation of hydrogel CHA-aPRF. The functional group formation of CHA were determined by FTIR (Thermo Scientific Nicolet 570, USA). To observe the degradation profile, the hydrogel supernatant was analyzed by UV-Vis spectrophotometer (Shimadzu, Japan). PRF was prepared briefly from 10 ml of rabbit blood. Then, the protocols were done in two methods, immediately centrifuged with a 1500 rpm, 14 min for aPRF and 2700 rpm, 12 min for aPRF. Clot was then pressed with a PRF processing box for 10 min to squeeze the fibrin out. The releasate with highest platelets were then loaded into CHA, by dropping 200 μ l PRF releasate onto 10 mg of CHA, and incubated for 1 h at 37°C (Fig. 1).



FIGURE 1. Material preparation: (a) hydrogel CHA preparation using physically cross-linked chitosan, (b) CHA components were produced where the releasate fraction composed of platelet rich plasma, (c) CHA-aPRF, (d) CHA-aPRF incorporation.

Animal experiments. 45 New Zealand rabbits lower incisors were moved distally with an orthodontic force of 50 cN (Fig. 2). The subjects were grouped into Group A (control), Group B (CHA), and Group C (CHA-aPRF). After 1 weeks, the distance was maintained. CHA and CHA-aPRF were then removed every 7 days (Fig. 2a). The brackets were then distalized. GIC was taken on day 0, 3, 7, 14, and 21 (Fig. 2b). The RANKL and OPG expressions were measured by ELISA methods (Fig. 2c). Relapse stages followed by CHA and CHA-aPRF intrasacular injection at the mesial (compression sides of relapse movement) PDL stretch incisors.



FIGURE 2. Design of the experimental tooth movement model: (a) a schematic of the orthodontic design, (b) an orthodontic vector bracket set 0.022, 2 mm on spring, 3 wires 0.018 square, 4 stainless steel wire, (c) the lower incisors were moved distally by an expand and spring with a force of 50 cN. (d) Relapse stages followed by CHA and CHA-aPRF intrasacular injection at the mesial (compression sides of relapse movement) PDL stretch incisors.

FIGURE 3. (a) Intrasacular injection of CHA-aPRF (0.2 ml) into the incisor could accept without treatment. (b) The distance between the lower incisors was measured four between the mesial tip of left and right lower incisor by using an electronic digital caliper during the relapse movement for 0, 3, 7, 14, and 21 days after debonding. (c) gingiva observation that color change was detected by two weeks after relapse motion. Paper point was inserted approximately 1 mm into the gingival sulcus of the mesial side of the incisors and was left in situ for 30 seconds.

Conclusion
Intrasacular injection of CHA incorporated aPRF potential to reduce orthodontic relapse by stimulates OPG expression and suppresses RANKL expression.

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Smart Agriculture Framework and Its Implementation to Open-field Tropical Horticulture Production*

Andri Prima Nugroho, Takashi Okayasu, and Lilik Sutiarso

INTRODUCTION

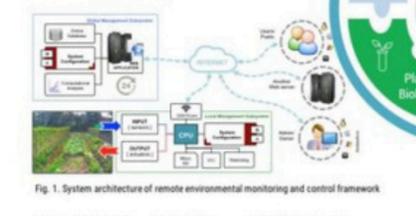
Open-field tropical horticulture production is highly affected by the uncontrollable environmental condition. To deal with it, farmers manage their farm so as to adapt the environment. The farming management, such as crop selection, planting schedule, and plant maintenance, generally decided by farmers according to their personal knowledge, gained from the experience of farming in the preceding years.

Nowadays, climate change intensifies unpredictable weather and unstable distribution. Consequently, the farming management considering the climate change should be taken into account.

The objective of this study was to introduce a smart agriculture framework, implementing a cloud technology, data science, and precision agriculture approach to improve conventional farming management in open-field tropical horticulture production.

SYSTEM DESCRIPTION

Environmental monitoring is the foundation of modern agriculture. Fig. 1 shows the system architecture of developed remote environmental monitoring and control framework (Nugroho, 2016).



CONCLUDING REMARKS

- Implementation of Precision Agriculture (PA) in open-field tropical horticulture requires big effort to realize. A monitoring/control framework having flexibility and robust performance is necessary.
- The use of cloud computing technology could provide a reliable access and flexible computation of collected environmental data.
- Knowledge and understanding about evapotranspiration might bring a better farming management and wise selection of appropriate application. Environmental control can be applied wisely according to the scenarios.
- Plant monitoring and assessment based on computer vision, adopted Optical Flow method as least motion tracking, could be used to quantify the circadian rhythm of mature plant foliage.

Environmental Assessment

Reference evapotranspiration (E_{T0}) is the evapotranspiration from reference surface that has used to estimate water loss from an open-field cultivation surface. The real-time E_{T0} monitoring and automatic detection of extreme E_{T0} have been developed for rapid environmental assessment.

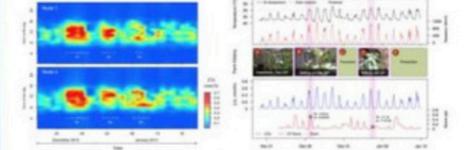


Fig. 3. Distribution of E_{T0} (Left), Air temperature and solar radiation (R_{top}), recorded activity (R_{mid}), real-time E_{T0} monitoring and its automatic change point detection.

Environmental Control

Irrigation control is one of the applications that can be improved by the utilization of environmental monitoring and assessment. Both automatic and scheduling irrigation can be performed in a precision manner by setting the set point target and irrigation scenario.

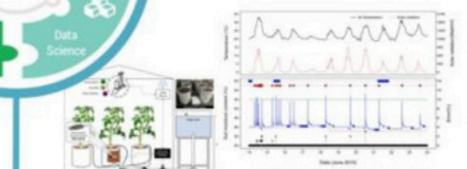
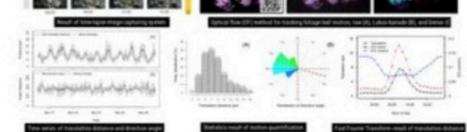


Fig. 4. Experiment setup of irrigation control (Left), Environmental monitoring data (Right, top), and performance of soil moisture content control with minimum set point.

Plant Monitoring & Assessment

A plant monitoring and assessment module based on computer vision techniques have developed. Plant motion and direction angle have been used to quantify the circadian rhythm and its relation to the environment.



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Timeline



Submission

03/08/2026 - 18/09/2026



Review

31/08/2026 - 25/09/2026



Announcement

28/09/2026



Exhibition

14/10/2026