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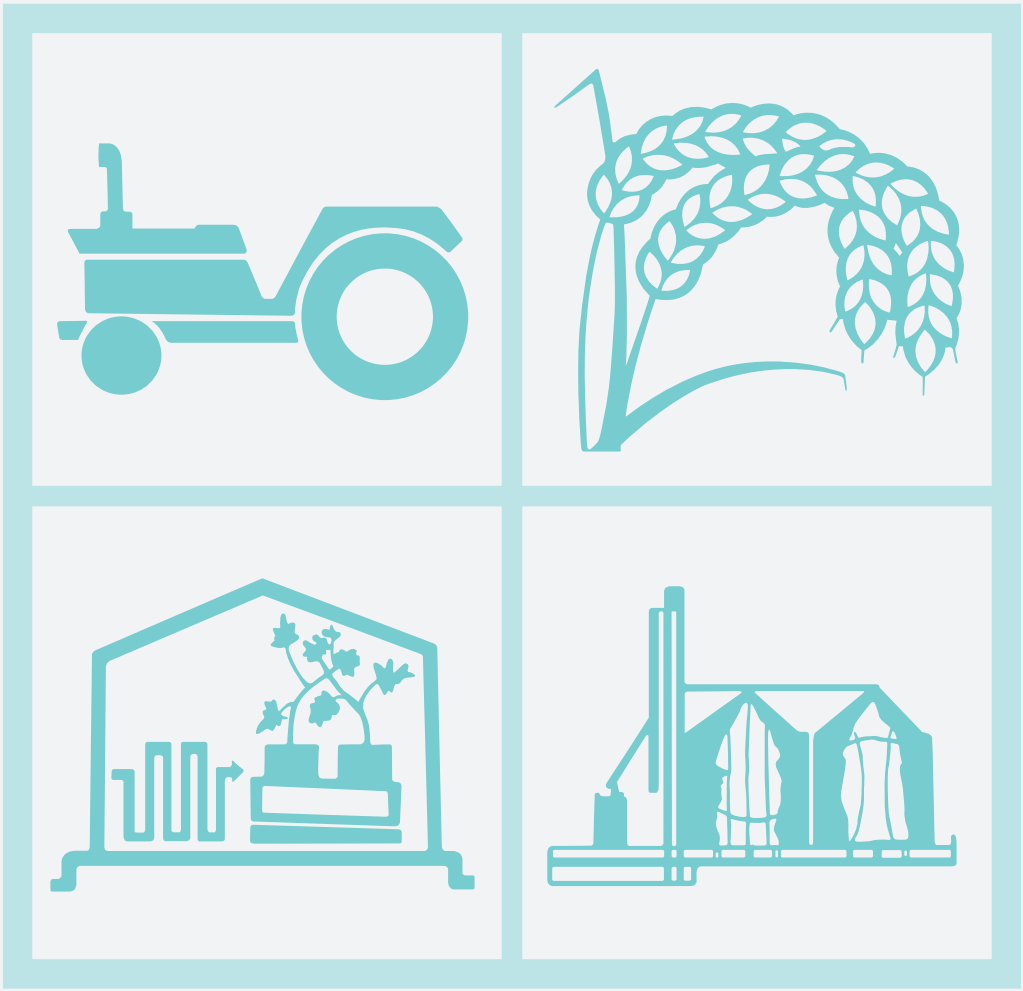

주최

(사) 한국농업기계학회
KSAM Korean Society for Agricultural Machinery

스마트팜 연구센터
Smart Farm Research Center

BAY 3 ▶스마트팜 시스템 및 신재생에너지 II

■ 좌장 : 선우훈 교수 (순천대학교) ■

11:10~11:22	101	**스마트 파밍 용어 표준화 전략과 지침** Strategy and Guideline for Development of Terminology Standards for Smart Farming 유정상(서울대학교), 김대현, 임종국, 강영선, 이중용*
11:22~11:34	102	**수경재배 토마토 정밀 관비를 위한 생육 모니터링 기반 작물 물 요구량 추정** Estimation of Water Requirements based on Growth Monitoring of Tomatoes for Precision Hydroponic Solution Management in a Greenhouse 강민석(서울대학교), 김학진*, 이상현, 박성권, 조우재
11:34~11:46	103	**순환신경망 모델 활용 온실 내부환경 최적 제어 방법 연구** Research on Optimal Control of Greenhouse Internal Environment Using a Recurrent Neural Network Model 오광철(강원대학교), 김석준, 박선용, 조라훈, 전영광, 이충건, 김대현*
11:46~11:58	104	**온실 토마토 수경재배에서 정밀 관수를 위한 증발산 모니터링** Monitoring Tomato Evapotranspiration for Precision Supply of Hydroponic Solution in a Greenhouse 박성권(서울대학교), 강민석, 이상현, 조우재, 김학진*
11:58~13:00		BAY 1 – Break Time
13:00~13:12	105	**표면탄화를 적용한 임목부산물 발열량변화 예측 모델 개발 및 검증** Development and Validation of Forest Byproducts Calorific value change Prediction Model using Surface Torrefaction 김석준(강원대학교), 박선용, 조라훈, 전영광, 오광철, 남서연, 김대현*
13:12~13:24	106	**휴대용 이온 분석기를 이용한 양액 내 Ca 이온 선택성 전극 성능 및 수명 평가** Performance Evaluation of a Laboratory-made Ca Ion-Selective Electrode for Precision Hydroponic Solution Management Measurement 이상현(서울대학교), 김학진*, 강민석, 박성권, 박찬민
13:24~13:36	107	**Development of Silk Fibroin-Based Non-Crosslinking Thermosensitive Bioinks for 3D Bioprinting** Juo Lee(Sunchon National University), Iksong Byun, Hoon Seonwoo*
13:36~13:48	108	**Diatom-Encapsulated Hydrogels: Green Approach for Gibberellic Acid Delivery in Sustainable Agriculture** Mahesh P. Bhat(Chonnam National University), Jae-Ho Lee, Cheol Soo Kim, Kyeong-Hwan Lee*
13:48~14:00	109	**Copper-Iron Based Bimetallic MOF Decorated Natural Diatoms for the Delivery of Thiabendazole** Vinayak Hegde(Chonnam National University), Mahesh P.Bhat, Jae-Ho Lee, Cheol Soo Kim, Kyeong-Hwan Lee*

Copper-Iron Based Bimetallic MOF Decorated Natural Diatoms for the Delivery of Thiabendazole

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Abstract

Crop disease and plant illness are serious concerns that impede plant growth and reduce agricultural productivity. Utilizing nanotechnology to administer active ingredients (AIs) unveils a chance of further enhancing the effectiveness of AIs and competitiveness in the agriculture industry. In this regards, the current study assessed the release of thiabendazole from lauric acid modified hybrid nanocomposite comprised of low-cost diatoms and a copper-iron based bimetallic MOF (DE-MOF-Tbz-LA). Here, lauric acid was used to develop the pH and temperature-triggered release system, where it also serves as a gatekeeper that facilitates a prolonged release. It was found that increasing the temperature from 27°C to 40°C enhanced the Tbz release rate. Additionally, DE-MOF-Tbz-LA demonstrated the highest rate of release under pH 5 condition. Such, temperature and pH responsive formulations are beneficial in controlled environment agricultural systems.

Keywords

Hybrid nanocomposite; stimuli responsive release; MOF.

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