Poster | 33.Poster

Wed. Jul 1, 2026 12:10 PM - 1:00 PM JST | Wed. Jul 1, 2026 3:10 AM - 4:00 AM UTC | Poster 1(4FFoyer+401+402)
[P005] Poster

12:10 PM - 1:00 PM JST | 3:10 AM - 4:00 AM UTC

[P03-435] Development of biodegradable fibers with mosquito-repellent activity

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Cellulose is a natural polymer found abundantly in plant cell walls. Here, we focus on cellulose extraction from unwanted invasive plants- -water hyacinth- -using acid hydrolysis. The crystallinity of cellulose from water hyacinth was 74.32% via hydrolysis. Then, fiber forming techniques via wet spinning method were deployed to produce high-purity biodegradable fibers. Interestingly, cellulose fibers are smaller than those commercially available, with properties suitable for applications like biodegradable films and composite reinforcement, offering sustainable use for invasive plant species. Furthermore, this research investigates the extraction of essential oils from Claret Tops Honey Myrtle (*Melaleuca linariifolia*). The extracted essential oil consists of eucalyptol, which was found at 80.03% of eucalyptol and 16.93% of α-terpineol, which Eucalyptol and α-terpineol have mosquito-repellent properties. The extracted oil was utilized to coat the synthesized cellulose fibers. This functionalization not only adds value to the cellulose fibers but also significantly expands their potential applications across various industries.