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Plant growth-promoting traits of epiphytic and endophytic yeasts isolated from rice and sugar cane leaves in Thailand

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1 **Plant growth-promoting traits of epiphytic and endophytic yeasts isolated**
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14
15 **Abstract**

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17 A total of 1,035 yeast isolates, obtained from rice and sugar cane leaves, were screened primarily for indole-3-
18 acetic acid (IAA) production. Thirteen isolates were selected, due to their IAA production ranging from 1.2 to
19 29.3 mg/g DCW. These isolates were investigated for their capabilities of calcium phosphate and ZnO₃
20 solubilisation, and also for production of NH₃, polyamine and siderophore. Their 1- aminocyclopropane -1-
21 carboxylate (ACC) deaminase, catalase and fungal cell wall-degrading enzyme activities were assessed. Their
22 antagonism against rice fungal pathogens was also evaluated. Strain identification, based on molecular
23 taxonomy, of the thirteen yeast isolates revealed that four yeast species – i.e. *Hannaella sinensis* (DMKU-
24 RP45), *Cryptococcus flavus* (DMKU-RE12, DMKU-RE19, DMKU-RE67 and DMKU-RP128),
25 *Rhodospiridium paludigenum* (DMKU-RP301) and *Torulaspora globosa* (DMKU-RP31) – were capable of
26 high-IAA production. Catalase activity was detected in all yeast strains tested. The yeast *R. paludigenum*
27 DMKU-RP301 was the best IAA producer, yielding 29.3 mg/g DCW, and showed the ability to produce NH₃
28 and siderophore. Different levels of IAA production (7.2 - 9.7 mg/g DCW) were found in four strains of *C.*

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