ICGEB International Centre for Genetic Engineering and Biotechnology | Developing Knowledge

ICGEB International SEMINAR PROGRAMME 2018

Monday, 2 July 2018 | 3:00 pm | ICGEB Seminar Room, W building | Padriciano, 99, Trieste, ITALY

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Artemisinin is a favourite drug in treating malaria faster than any other drug currently available in the market. It is a lifesaver plant metabolite in treating malaria, which affects nearly half of the global population and kills over 500,000 people each year. However, it is a costly drug due to the high cost involved in extraction and purification process from the low yielding native plant (Artemisia annua). we have successfully produced this drug in alternative tobacco plants using the compartmentalized metabolic engineering approach. The rationalized expression of two biosynthetic pathway in different plant organelles has enabled us to reach the maximum yield at clinically meaningful levels (2016, Mol. Plant. 9, 1464-1477). Also, we have shown that extracts from the double transgenic plant have effectually inhibited the in vitro growth of Plasmodium falciparum-infected red blood cells. Furthermore, oral feeding of whole intact plant cells bioencapsulating the artemisinin reduced the parasitemia levels more efficiently in challenged mice when compared with purified artemisinin. Thus, delivering the drug orally using the whole plant could make this drug affordable to more people while eliminating the need for an expensive extraction and purification processes.

"Metabolic Engineering of plant for artemisinin biosynthesis and efficient resilience of whole plant in treatment of rodent malaria "

Host: L. Banks

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More information at:

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