

The explosion in human population is a problem to the survival of human existence, so there is an urgent need to increase the production capacities of products, including vaccines, therapeutic molecules, antibodies, industrial enzymes, developing plant oil as well as biofuels and produce them at low-costs. Plant biotechnology based production was considered to be a solution for such a major global challenge. However, this approach is not yet exploited for the production of any recombinant protein for any major application so far. This was mainly due to lack substrates and/or high level expression of enzyme activity in a desired plant tissue making the whole process uneconomical. So, a combine of many molecular biology techniques, such as seeking synthetic or modified genes and use most sensible genetic engineering strategy can solve above problem. In this overview, I would like to focus just some topics which I had worked, and hope they may be support new products or increasing a product and produce at low-cost.

### 1. Boost $\beta$ astaxanthin and EPA in soybean and camelina seeds



Astaxanthin accumulation turn soybean seed to orange (right) compare with non-transgenic seeds( left)

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