

Pharmacokinetic and antigenic properties of *Aspergillus flavipes* (JF831014) L-methioninase *in vivo*

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Methionine starvation can powerfully modulate DNA methylation, cell cycle transition, polyamines and antioxidant synthesis of tumor cells, in contrary to normal cells. *Aspergillus flavipes* L-methioninase (Af-METase) displayed affordable biochemical properties comparing to *Pseudomonas putida* enzyme (ONCASE) as described by our previous studies. The catalytic properties of Af-METase in New Zealand rabbits were evaluated, *in vivo*. Af-METase (40.8 U/ml) have T_{1/2} 19.8 hr, elimination constant 0.088 U/hr and apparent volume of distribution 85 U/ml. *In vivo*, Af-METase has two maxima one at A_{280nm} (apo-enzyme) and at A_{420nm} (internal Schiff base with PLP), unlike control plasma (without enzyme), as baseline. The two peaks of absorption spectra were detected maximally at 15 min then the absorbance at 420nm was subsequently decreased with circulation time, due to dissociation of the co-enzyme. The A_{280/420} ratio was increased from 1.69 to 5.81 with circulation time from 15 to 30 hr. Plasma methionine of rabbits was depleted from 18.7 μM (control) to 8.8 μM after 1hr of enzyme injection. After 2 hr till 19 hr, L-methionine was not detected by HPLC column, assuming the sustainability of negligible levels of methionine (< 2μM) in plasma of rabbits, for about 17 hr. Upon infusion of PLP, the T_{1/2} of Af-METase was significantly prolonged by 3.2 fold, assuming the fully reconstitution of the enzyme. The holo-enzyme form still retained its co-enzyme, completely, till 33hr of PLP infusion. From spectral studies, the internal aldimine linkage by apo-Af-METase was formed upon infusion of PLP, with fully catalytic structure after less than 4 hr of PLP infusion, the ratio of A_{280/420} being not relatively changed till 45 hr. Immunologically, the titer of IgG was appeared after 25 days of last enzyme dose, by about 1.66 fold higher comparing to control (without enzyme). However, IgM was not detected along the tested challenge points. Plasma anti-Af-METase neutralizing antibodies (NAb) were assessed. No significant reduction on activity of Af-METase, only about 15 % of its initial activity was lost upon 40.8 U/ml, *in vitro*. All the hematological parameters were in normal range, except the titer of RBCs and level of platelet were shown to be slightly increased, after 25 days of Af-METase injection, comparing to control. There is no obvious negative effect on chemistry of liver, kidney, glucose, lipids, and other electrolytes.

Biography

Ashraf El-Sayed has completed his Ph. D in 2008 from Faculty of Science, Zagazig University, Egypt. I have postdoctoral studies in Applied Biology Department, Kyoto Institute of Technology, Japan (2008- 2009), focusing on production of gamma glutamyl dimmers as thermostable analogues to the corresponding amino acids that are valuable in food industries. Currently I am associate professor of biotechnology, faculty of science, Zagazig University. My current research concerned with biochemical, molecular characterization, immobilization and posttranslational modifications of some therapeutic enzymes as L-methioninase, cystathionine gamma lyase, homocysteine gamma lyase, arginase, arginine deiminase and L-amino acid oxidase. I have published more than 12 in reputed journals. I am reviewer for more than 30 published paper various reputed journals.

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Jatropha and algal biomass: Study on the better source for biodiesel

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Biodiesel is replacing the normal petrol and has become an irreplaceable necessity of the present World. Many researchers in India and abroad are working on the sources of biodiesel, in India mainly being *Jatropha* and Microalgae Which owing to their rich Biomass and cost effectiveness encourages commercialization of the same. The present paper is a comparative study to find out the better source of Bioethanol and biofuel production. Results suggest microalgae to be better source due to following reason: more oil per acre than the current crops now utilized for the production of biofuels. They can produce up to 94,000 liters of oil per acre, shrinking land requirements and are easily grown under conditions which are unsuitable for conventional crop production i.e., marine water, wastewater, open ponds.

Biography

Harsha Kharkwal is Assistant Professor and Coordinator at Amity Center for Carbohydrate Research. She completed her Ph.D from National Botanical Research Institute, CSIR and continued her research work at University Institute of Chemical Technology, Mumbai. She is the recipient of Lucid research Award for 2004, has published more than 25 papers in Journals of repute, she has edited 1 book and has filed more than 40 patents. In such a short span, she has even guided 2 Ph.D students.

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