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## BOOK OF ABSTRACTS



## III6. Health Microbiology and Biotechnology

### P277. Using carbon nanotubes for antileukemic drugs purification

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Nowadays, the average life expectancy is progressively increasing. Nevertheless, there are still several fatal diseases generally associated with aging, such as cancer, heart and neurological diseases. Biopharmaceuticals as nucleic-acid-based products, antibodies and recombinant proteins and enzymes are applied in order to overcome these age-related diseases.

L-asparaginase (LA) is one of the most broadly used therapeutic enzymes, efficient for the treatment of acute and chronic lymphoblastic leukemia, Hodgkin's disease and different types of melanomas [1]. The main problem related to the therapeutic use of LA is the difficulty in its production and purification. LA is produced via fermentation and its purification is usually comprised of several steps, which can include precipitation, liquid-liquid extraction and chromatography techniques [2]. High yield and purity demand long processing times, followed by the increase of process costs. So, the development of a cost-effective production/purification process is of emerging concern.

In this work, reusable functionalized nanomaterials, namely CNTs, were studied as a cost-effective support to purify LA. Commercial LA was used for preliminary tests. Experimental conditions, such as pH, contact time and material/LA mass ratio were optimized. LA activity was assessed by Nessler reaction, which quantifies the amount of ammonium released after the enzymatic reaction [3].

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#### References

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