NOVEL IMMOBILIZATION AND TRAPPING METHOD FOR ENZYMES

The invention deals with a novel method for immobilization enzymes on solid surfaces such as metallic and graphite ones, which overcomes the disadvantages of standard current methods.

Technology

The immobilization technique is accomplished by doping the surface with a blend of the enzymes to be fixed, glutaraldehyde and nafion-ion exchanger, as protective additive.

Therefore, the above technique is based on the synergy of two of the most important ones at present (i.e coating and cross-linking) which involves having the advantages of both methods.

The use of the standard methods separately leads to the appearance of several problems. Thus, the use of glutaricdialdehyde produces disadvantages such as interaction between different enzymes on the medium or enzyme denaturalization which provokes a dramatic decrease of their bio-catalytic activity.

![Figure 1](image1.png)

*Figure 1.- Use of glutaricdialdehyde and Nafion-ion exchanger mixture, as a method for immobilization and trapping of oxireductase enzymes.*

The proposed method can be adapted for the trapping and immobilization of several biologic substances, so that it can be employed in the design of sample measuring devices both in situ and in real time of samples, especially in the food, environmental and health fields.

Moreover, another possible application for this method can be the construction of bioreactors, provided that the high stability of the matrix, even in very aggressive media.

Benefits

- Resistance to aggressive media
- High stability of the matrix
- Improvement of enzyme link to surfaces
- Enzyme inhibition is prevented in a broad range
- The immobilization method does not affect the nature of enzymes.

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