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Biosensor approaches to determination of L-arginine in foods and clinical samples

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Today's biosensor technology applied as a most promising tool for analytical purpose. In this contest, we focus on biosensing approaches for determination of L-arginine. L-arginine, which is found in most proteins in our daily diet, has been considered the most potent nutraceutical ever discovered, due to its powerful healing properties, and is being referred to by scientists as the Miracle Molecule. The two most major part of the biosensor that need to be optimized, one is the immobilization of biological components and other is the relevant transducer. From many literatures, we have found co-immobilization of two enzymes such as arginase and urease used for the detection of L-arginine. In this, the final product is ammonia, so it can be detected by using such kind of transducer as: pH sensing electrode, ammonia gas sensing, ammonium ion-selective, conductometric and amperometric electrodes are applied. Critical significance of this review is the fact that L-arginine in foods is used as a flavor-providing agent, detection is important as a control measure for quality ensure in foods such as beverages, juices and wine. The dietary sources of L-arginine include red meat, nuts, spinach, lentils, whole grains, soy, sea foods and eggs etc. Other more importants in human physiology with the enormous inherent versatility of L-arginine in various pathways, involved with normal growth and maintenance of the body. The estimation of L-arginine takes place through its metabolic products such as urea, ornithine and citrulline. L-arginine is a precursor of several important intermediates so its determination is imperative as a marker for several diseases.

Biography

Ashish Kumar Singh is a Ph.D. student of Biotechnology at Punjabi University Patiala, Punjab, India. He has more than 7 publications in reputed journals. His current research interests include biosensor development for food quality and clinical applications.

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