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The main directions of socio-economic development of New Uzbekistan: problems and solutions

MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATION OF THE REPUBLIC OF UZBEKISTAN

JIZZAKH BRANCH OF THE NATIONAL UNIVERSITY OF UZBEKISTAN NAMED AFTER MIRZO ULUGBEK

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The main directions of socio-economic development of New Uzbekistan: problems and solutions collection of materials of the international scientific and practical conference on the topic

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Department of Economics and tourism of Jizzakh branch of the National University of Uzbekistan named after Mirzo Ulugbek
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In the collection of materials of the conference, the role and role of Science, Education and production in the era of globalization, the pressing problems of the issues of interaction of these processes, feedback on their solutions were presented by mature specialists of the field.

In addition, research on the scientific and practical topic, carried out in the economics, Exact Sciences, Natural Sciences and socio-humanities during the globalization period, information is presented in the scientific and practical fields, which includes the latest innovative technologies in the fields of production.

It can be argued that this collection is one of the specific intersections of current thoughts and innovative ideas of the world of science. This scientific and practical conference was actively attended by professors and scientific researchers engaged in scientific research in Uzbekistan and foreign countries. In increasing the position of the scientific and practical conference, the professors and teachers of domestic and foreign higher educational institutions made a significant contribution.

Professors and teachers of foreign higher educational institutions who actively participated in the work of the conference made a worthy contribution to the high level of interaction with scientists of our country. The processes of international cooperation with foreign countries and exchange with them in the field of Science in the era of globalization have a positive effect on the development of Higher Education, the fields of Science and production. The materials of this conference are special in that they include a wide range of research, from theoretical developments to practical solutions, demonstrating the diversity of approaches and directions in this area.

In conclusion, it should be noted that this scientific and practical conference will be a very useful collection for everyone who is interested in modern research in the fields of further development of Higher Education, Science, Education and production in the era of globalization. The authors are responsible for the content and quality of the articles and abstracts included in the collection.

O‘SIMLIK PEROKSIDAZA FERMENTINING BIOLOGIK AHAMIYATI



Abdumalikova Sarvinoz Farhod qizi, Fattoxova Dildora Obid qizi, Abduvaliyeva Madinabonu Muhammadjonovna
O‘zbekiston Milliy Universiteti Jizzax filiali “Biotexnologiya” yo‘nalishi 3- kurs talabalari
E-mail: fattoxovadildora@gmail.com

Annotatsiya: Har bir tirik organizmlarda kechadigan asosiy biokimyoviy jarayonlar, jumladan nafas olish, oziqlanish, energiya almashinuvi kabi qator jarayonlar fermentlar ishtirokida amalga oshadi. Bu fermentlar qatoriga o‘simliklarda uchraydigan peroksidaza fermentini misol qilib keltirish mumkin. Ushbu maqolada o‘simlik peroksidazasining biologik ahamiyati haqidagi ma‘lumotlar keltirilgan. Peroksidaza - juda ko‘p tarqalgan ferment oqsillaridan biri bo`lib, uni o‘rganishga bo‘lgan qiziqishlar yillar davomida ortib bormoqda. Bu fermentni o‘simlik va hayvonlarning to‘qimalarida, shuningdek zamburug‘lar va bakteriyalarning tarkibida mavjudligi uni yuqori va quyi organizmlarning muhim birikmasi deb hisoblashga asos yaratadi.

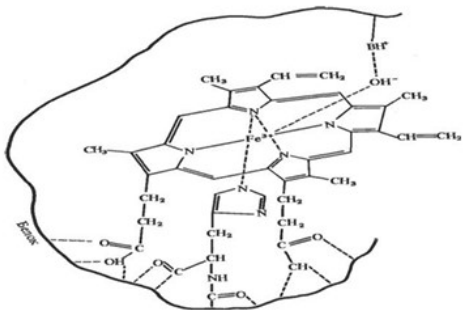
Kalit so‘zlar: fitopatogen, ferment, oksidareduktaza, nafas olish, izoperoksidaza, gem tutuvchi peroksidazlar, stress fermenti.

Fermentlar butun tirik organizmlarda biologik katalizator funksiyasini bajaradi. O‘simliklar hayotida ham fermentlar o‘ta muhim birikmalar bo‘lib bir qancha biokimyoviy jarayonlarni boshqaradi. O‘simlik hujayrasidagi biokimyoviy reaksiyalarda qatnashadigan eng muhim fermentlardan biri bu peroksidaza fermentidir. Bu fermentning nafaqat o‘simliklar, balki boshqa tirik organizmlardagi izoferment spektrini va uning tirik organizm hayotidagi hujayraviy jarayonlardagi rolini aniqlash bugungi kundagi qishloq xo‘jaligi, meditsinaning qator muammolarini hal qilish imkonini beradi. Bundan tashqari bu fermentning bugungi kundagi biotexnologik amaliy jarayonlarda qo‘llanilishini e‘tiborga olib tozalash muammolarini hal qilish muhim ahamiyat kasb etadi.

Peroksidaza fermenti haqida dastlabki tushunchalar: Peroksidaza - tirik organizmlarda turli funktsiyalarni bajarishga qodir, funktsional jihatdan juda labil ferment. Peroksidazaning asosiy vazifasi superoksid dismutaza va katalaza bilan birga organizmni oksidlovchi stress paytida hosil bo'lgan vodorod peroksid va boshqa reaktiv kislorod turlarining zararli ta'siridan himoya qilishdir. Bu fermentning yana bir muhim vazifasi uning yuqori quruqlikdagi oÿsimliklarning toÿqimalar va organlarining differensiallanish jarayonlarida bevosita ishtirok etishidir [2].

Peroksidaza fermenti mavjudligi haqidagi dastlabki ma‘lumotlar 1855-yillarda Shenbeyn bir qancha organik moddalarni o‘simlik va hayvonlardan olingan

ekstraktlar hamda vodorod peroksid bilan aralashtirganda parchalanish mahsulotidan hosil bo‘la boshlagan vaqtdan boshlab kuzatishni boshlagan. Peroksidazani aniqlashning birinchi ishi 1902-yilda “Tirik hujayra kimyosida peroksidni rolini o‘rganish” nomli ish hisoblanadi. A.N.Bax va R.Shoda bilan birgalikda bajarilgan bu izlanishlar jarayonida 1903-yilda xren ildizlaridan peroksidazaning qisman tozalangan preparati olingan [1]. Bu fermentga “peroksidaza”nomini Linoze bergan bo‘lib, u birinchilardan bo‘lib, “oksidaza” va “peroksidaza” orasidagi farqni tavsiflab bergan. Bugungi kungacha bu ferment zamburug‘lardan *Aspergillus* avlodiga *Aspergillus niger* va bir qator zamburug‘lardan hamda xren o‘simlikligidan ajratib olingan va amaliyotda asosan xren peroksidazasi ko‘p ishlatiladi [3, 8]. Peroksidaza - ikki komponentli ferment bo‘lib, o‘zida faol guruh birikmalarini tutib, ushbu guruhlar substrat bilan kimyoviy ta`srlashadi yoki bo`lmasa katalitik faollikni oshirishda kalloid oqsillar bilan ham ushbu faol guruhlar yordamida ta‘sirlashadi. Peroksidaza fermenti globulyar oqsil bo`lib diametri 50A oqsil qismda 43% α spiral qisimlari mavjud. Ferment nomenklaturasi bo`yicha 1979 yil xalqaro syezdda qabul qilingan, peroksidaza fermenti akseptor sifatida vodorod peroksidiga ta‘sir ko`rsatuvchi ferment hisoblanadi [4]. P. molga ega gemoproteinlardir, tortish (massa) 40 000 dan 100 000 gacha bo'lgan protogematin bo'lgan protez guruhidan apoenzimni teskari ajratish imkoniyati ko'rsatilgan. P. apofermentiga sof protogematin qo‘shilishi ferment faolligining deyarli to‘liq tiklanishiga sabab bo‘ldi. Aniqlanishicha, peroksidaza reaksiyasi jarayonida oksidlangan substrat bevosita fermentning protez guruhidagi temir atomiga biriktiriladi. Gemoglobin ham peroksidaz faolligiga ega (nisbatan zaif bo'lsa ham); bu xususiyat qon yoki gemoglobin mavjudligini, masalan, siydikda aniq aniqlash, shuningdek, sud tibbiyotida qon izlarini aniqlash uchun ishlatiladi. Sof P. eritmalari spektrning 645, 583, 548 va 498 nm da ko‘rinadigan hududida xarakterli yutilish maksimallariga ega [5, 9].



Rasm. Peroksidaza fermentining birlamch tuzilishi. Peroksidazaning geminli qismi

Peroksidazaning yuksak o‘simliklardagi ribulozodifosfatkarboksilaza oksigelazaga xos oksigelazali funksiyasining paydo bo‘lishidagi roli ko‘rsatilgan Arpa va Limosella o‘simligi ildizlaridagi peroksidazalar peroksidazali va oksidazalidan tashqari oksigenazali xususiyatlarni ham namoyon qildi, biroq bunda

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reaksiya uchun mis ionlari bo‘lishi zarur bo‘ldi. Ba‘zi reaksiyalarda peroksidaza katalitik faolligining namoyon bo‘lishi uchun kofaktorlar bo‘lishi shart. Bu ferment uchun kofaktorlar rolida Mn^{2+}, Zn^{2+}, Cu^{2+}, Ca^{2+} va boshqa metallar yoki peroksidaza molekulasi bilan vaqtinchalik o‘zaro ta‘sirlashuvchi murakkab organik birikmalar ishtirok etishi mumkin [6-8].

Xulosa: Bugungi kunda fermentlarga bo’lgan talab yuqoriligini e’tiborga olganda, fermentlar barcha tirik organizm hayot faoliyatida ishtirok etuvchi biologik katalizatordir. Aynan peroksidaza fermenti o’simliklar antioksidant tizimining bir qismi sifatida stress sharoitlarda o‘simlikni himoya qilish tizimi sifatida faoliyat olib boradi.

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