BÖLÜM 10

REKOMBİNANT DNA TEKNOLOJİSİ VE KULLANILAN MİKROORGANİZMALAR

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GİRİŞ

Biyoteknoloji, DNA teknolojisiyle bitki, hayvan ve mikroorganizmaları geliştirerek, doğal olarak var olmayan veya ihtiyaçlarımı yeterince karşılayamayan ürünleri elde etmeyi amaçlar, bunun içinde hücre ve doku kültürü, moleküler biyoloji, mikrobiyoloji, genetik, fizyoloji ve biyokimya gibi doğa bilimlerinin yanı sıra pek çok mühendislik alanlarından faydalanır. Biyoteknoloji, sunduğu veya sağlayacağı ürün ve hizmetlerin doğrultusunda ve çeşitliliğinde benzersiz olup özellikle tıbbi konularda çok büyük ilerlemeler göstermiştir (1). İnsan sağlığı için yararlı olan proteinlerin üretiminde, kanser gibi ciddi hastalıkların tedavisinde ve önlenmesinde, beyinde hasar oluşan hücrelerinin onarılasında rol oynar. Ayrıca tarım ve bahçecilik, gıda gibi katkıda bulunduğu, tedarik ve beslenme, enerji üretimi, kimyasalların ve malzemelerin üretimi, su ve atık arıtma, geri dönüşüm, doğal kaynakların elde edilmesi ve bunlara değer katmasını amaçlamaktadır. Biyoteknoloji bu kadar geniş kullanım alanına sahip olmasına karşın bazı zorlukları da vardır. Bu zorluklardan biri de, endüstriyel uygulamalar için kullanılan, doğada yaygın olan özelliklere sahip olan veya olmayan doğal molekülleri bulmaktır (2).

Teknolojinin tarihsel gelişimi, 1970'li yılların başında önemli dönüm noktalarıyla işaretlenmiştir. 1973 yılında Herbert Boyer ve Stanley Cohen'in farklı türlere

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Özetle, rekombinant DNA teknolojisi ve kullanılan mikroorganizmalar, modern biyoteknolojinin temel direkleridir. Bu alan, sürekli gelişmekte ve insan sağlığı, gıda güvenliği, enerji ve çevre gibi küresel zorluklara yönelik dönüştürücü çözümler sunmaya devam etmektedir. Gelecekteki araştırmalar ve yenilikler, bu teknolojinin potansiyelini daha da derinleştirecek ve biyolojik sistemlerin anlaşılması ve manipülasyonu konusunda yeni kapılar açacaktır.

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