BÖLÜM 1

YEM KATKI MADDELERİNİN ÜRETİMİNDE NANOTEKNOLOJİNİN KULLANIMI

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GİRİŞ

Nanoteknoloji alanı biyolojik araştırmalara, terapötik araştırmalara ve çevresel kaygılara yönelik geniş bir çeşitlilik getirir. Nanoteknoloji, tüm dünyada tarım ve hayvancılık sektöründe devrim yaratma potansiyeline sahip, gelecek vaat eden ve gelişmekte olan bir teknolojidir. Nano, 'Cüce' anlamına gelen Latince bir kelimedir ve nanoteknolojiyi tohumlayan kavram ilk olarak 1959'da ünlü fizikçi Richard Feynman tarafından açıklanmıştır. 2013 yılında ABD'deki Ulusal Nanoteknoloji Girişimi, nanoteknolojiyi yaklaşık 1 ila 100 nanometre arasındaki nano ölçekli boyutlardaki maddenin anlaşılması ve kontrolü olarak açıklamıştır; bu noktada benzersiz fenomenler yeni uygulamalara olanak tanır. Nanoteknoloji, adından da anlaşılacağı üzere daha büyük moleküllerin nanometre boyutuna dönüştürülmesiyle ilgilenir (Logman v.d. 2012; Ognik v.d. 2016). Bu daha büyük molekülleri daha küçük moleküllere dönüştürme süreci, temel malzemenin doğuştan gelen fiziksel ve kimyasal yapısında değişikliklere neden olur. Bu değişiklikler, çözünürlükte, emilimde, taşıma mekanizmasında, atılımda ve en önemlisi antagonizmalarda değişiklik içerir. Hayvan/hayvan bağırsağında veya hücre düzeyinde mineral antagonizması, emilim, taşıma ve atılımda mineral dengesizliğine yol açar. Teknoloji mühendisleri nano düzeye çıktıkça, özellikleri daha büyük bir ölçeğe kıyasla temelde ve öngörülemez şekilde farklılık gösterir. Bu tür değişiklikler beslenme, teşhis, tedavi, biyoteknoloji, aşı üretimi, kimya endüstrileri vb. gibi çeşitli alanlarda arzu edilir görünmektedir. Bu teknolojinin ortaya çıkan ürünü, çeşitli bilimsel alanlarda kullanılabilen daha fazla nüfuz edilebilirlik, reaktivite, yüzey

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SONUÇLAR VE ÖNERİLER

Nanoteknoloji, iyileştirilmiş yem bileşenleri, katkı maddeleri, gıda güvenliği ve kalite kontrolü ile hayvancılıkta büyümeyi ve üretimi artırmak için yeni yollar sunmaktadır. Teknoloji çeşitli uygulamalarla sürekli gelişim gösterse de çalışmalar sınırlıdır. Yeşil sentez yoluyla nano parçacıkların üretimi, kimyasal sentez yöntemine uygulanabilir bir alternatif olarak kullanılabilir. Hayvanlara, insanlara ve çevreye herhangi bir zarar vermeden etkinliğini ve biyogüvenliğini desteklemek için hala kapsamlı araştırmalara ihtiyaç duyulmaktadır.

Sonuç olarak, nanoteknoloji, sağlık, yem bileşenleri, katkı maddeleri, yem işleme, gıda güvenliği ve kalite kontrol gibi unsurları iyileştirerek hayvancılık ve kümes hayvancılığının gelişimini artırmak için umut verici bir yol sunmaktadır ve mevcut araştırmalarda mineral nanopartiküllere özellikle odaklanılmaktadır. Ancak, nanometre ölçeğinde diğer besin maddelerinin araştırılmasında önemli bir boşluk bulunmaktadır. Nanopartiküllerin kimyasal sentezine potansiyel bir alternatif, hayvanlara, insanlara ve çevresel ekosistemlere zarar vermeyi önlemede etkinlik ve biyogüvenlik açısından umut vadeden biyolojik yöntemdir. Bununla birlikte, bu yaklaşımın etkinliğini ve güvenliğini tam olarak anlamak ve sağlamak için daha kapsamlı araştırmalara ihtiyaç vardır.

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