



SAMNs Nanoparticle production for purification

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TRL scale



What's needed for?

This invention has developed an innovative, environmentally sound and low-cost method for the synthesis of magnetic nanoparticles (Surface Active Maghemite Nanoparticles - SAMNs): their surface characteristics are especially useful in medical and agri-food applications. They are especially efficient in purification processes of complex mixtures because they guarantee an elevated purity of isolated compounds.

Current methods used in compound isolation from complex mixtures in purification chemistry and in the agrifood industry are often elaborate and costly. The SAMNs produced in this patent can be used in simple, repeatable and convenient processes. For example, the current system used to produce lactoferrin is ion-exchange resin chromatography,, which yields 1g of lactoferrin from 1000 litres of milk serum. Magnetic purification with SAMNs can yield 500 times more, with final product purity over 90%. Other applications of SAMNs are curcumin purification, removal of hexavalent chromium or of microtoxins generated from fermentation processes.

Advantages

- Cost efficient method for the production of SAMNs
- Greater production yield
- Greater product purity

Applications

- Industrial production of lactoferrin
- Industrial separation of compound from complex mixtures
- Hexavalent chromium removal
- Curcumin purification
- Micro-toxin removal.