

## Evaluation of magnetic nanoparticles influence on hyaluronic acid production from *Streptococcus equi*

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### Abstract

This work aims at developing a novel hyaluronic acid (HA) production method using magnetic nanoparticles (NPs). In a separate process, HA was produced with the addition of the amino acids (AA) as bio-additives. Regarding the NPs additives, the results showed that the highest dry weight of the produced HA was 0.264 g/l with the addition of 20 mg/l of Fe<sub>3</sub>O<sub>4</sub> NPs. Concerning the AA additives, the results showed that the highest dry weight of the produced HA was 0.079 g/l with the addition of 0.26 g/l of glutamic acid (GA) compared to the control produced 0.065 g/l. These results led to further develop a novel HA production method which is preparing the Fe<sub>3</sub>O<sub>4</sub> NPs using GA as stabilizer, where the results showed that dry weight of the produced HA was 0.435 g/l with the addition of 20 mg/l of Fe<sub>3</sub>O<sub>4</sub>-GA NPs.

### Keywords

Hyaluronic acid  
Pharmaceuticals  
Nanomaterials  
Nanoparticles  
Biomaterials  
Mutants