

## عنوان مقاله:

Sonophotocatalytic degradation of amylose in the precence of ZnO nanoparticles

## محل انتشار:

پانزدهمین کنگره ملی مهندسی شیمی ایران (سال: 1393)

تعداد صفحات اصل مقاله: 5

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## خلاصه مقاله:

The degradation of amylose (a natural carbohydrate polymer) by means of ultrasound irradiation at a frequency of 24 kHz and its combination with heterogeneous ZnO, followed by a photocatalytic process was investigated. A method of viscometry was used to study the degradation behaviour and a kinetic model was developed to estimate the degradation rate constant. The ultrasound power not only led to enhanced turbulence and liquid streaming, but also increased the active surface area. Therefore, ZnO sonophotocatalysis was carried out faster than sonolysis and sonocatalysis processes. The influence of the basic operational parameters such as, ultrasound power and amount of ZnO on the degradation rate of amylose was also studied. The results revealed that the extent of sonolytic degradation was increased with increasing of ultrasound power (in the range 30–80 W) and at higher catalyst concentration, the degradation rate in the solution soared. The degraded amylose was characterized by gel permeation chromatography (GPC), and scanning electron microscopy (SEM).

## کلمات کلیدی:

Amylose, Sonolysis, Sonophotocatalysis, Molecular weight, Viscosity, Degradation

## لینک ثابت مقاله در پایگاه سیویلیکا:

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