

Method for synthesizing N-maleimidoglycine, modifying chitosan, and analyzing the degree of N-maleimidoglycine substitution

About the invention

The invention provides an efficient method for synthesizing N-maleimidoglycine using alumina-modified silica as a catalyst, followed by its conversion into an active N-hydroxysuccinimide ester and covalent attachment to chitosan under mild conditions.

The solution also includes a quantitative analytical method for determining the degree of substitution via normal-phase HPLC.

The resulting maleimidoglycine-modified chitosan remains biocompatible, enables further chemical functionalization, and serves as a versatile platform for advanced biomedical materials.

IP protection

The invention is protected by a patent application in the Patent Office of the Republic of Poland under the number: **P.443979**

Technology readiness level

TRL 4 – Technology validated in laboratory conditions.



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Applications

- Chitosan modification for biomedical and material applications,
- Conjugation of proteins, peptides, and nanocarriers via Michael addition,
- Development of functional hydrogels, drug-delivery systems, and bioactive carriers.

Possible cooperation

- Joint development of chitosan functionalization and bioconjugates,
- Process optimization and creation of new biomedical materials,
- Licensing for pharmaceutical and material-science applications.