Covalent protein immobilization on modified cellulose for N-glycan purification

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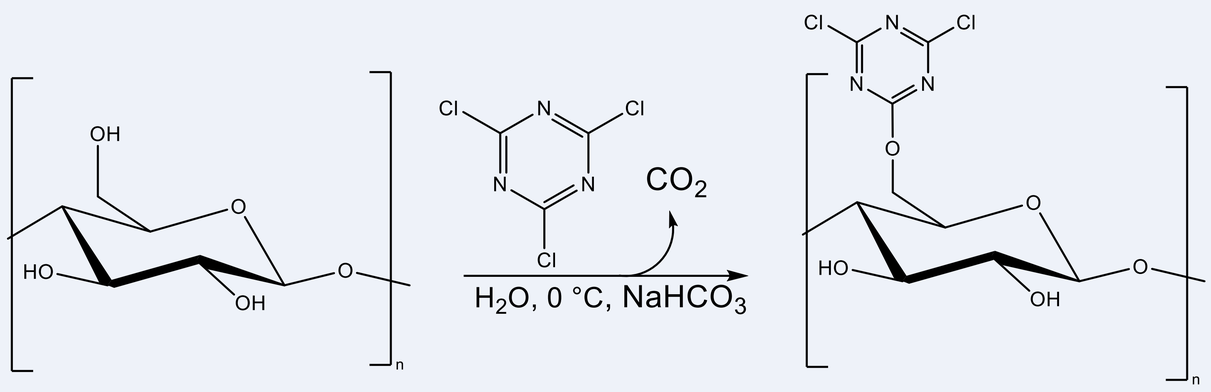
Proteins are usually physically adsorbed onto supports, however they can spontaneously undergo to desorption. By considering this, here is described a **covalent immobilization method.**

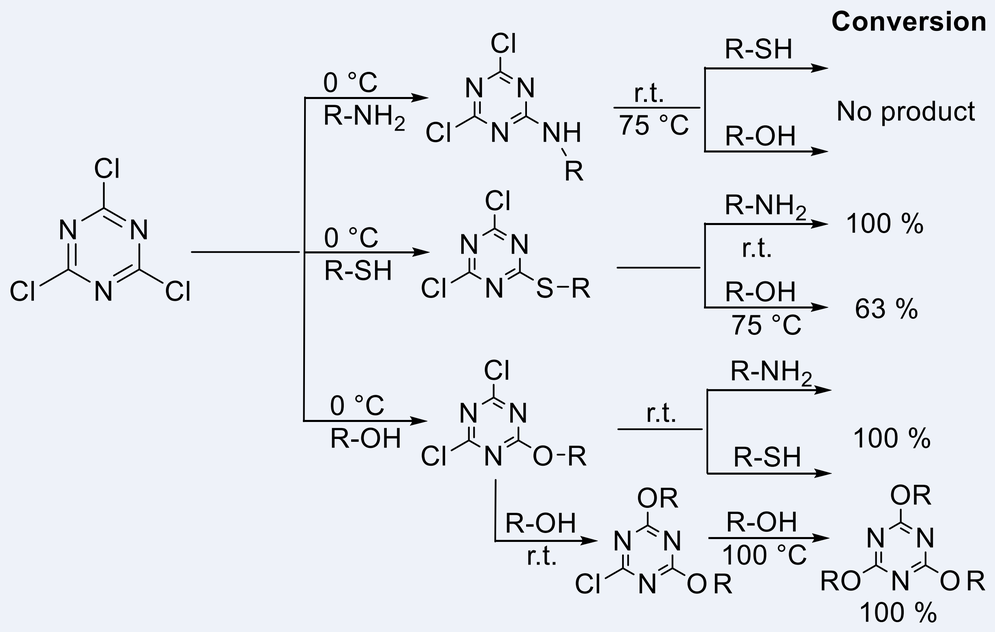
• Step 1: Modify

Cellulose functionalization with ***trichloro triazine*** for ***covalent immobilization*** of ***proteins*** and purification of ***N-glycans***.



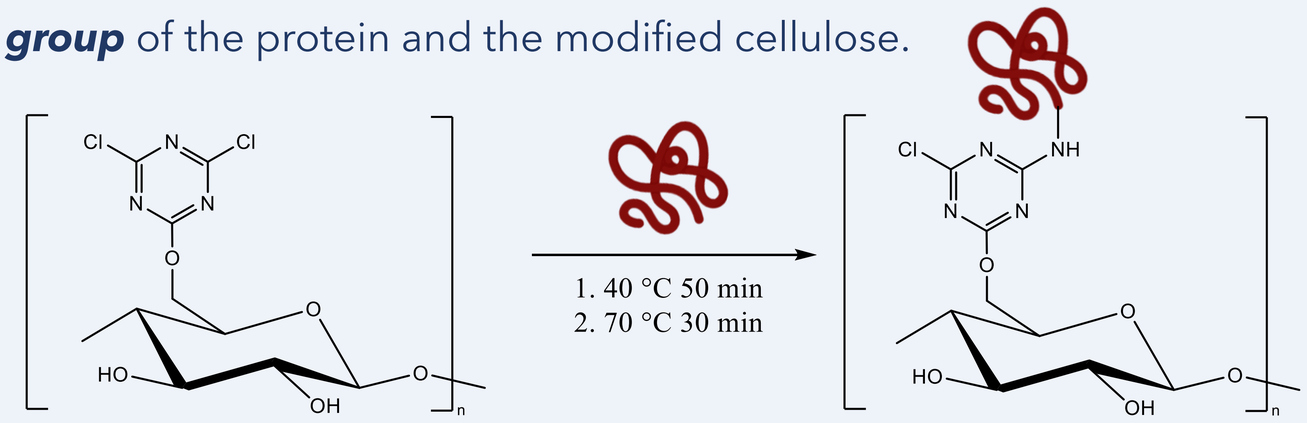
Substitution of chlorine atoms of trichloro triazine is possible at ***different temperatures.***

Below: Temperature of reactions for subsequent substitution of chlorine atoms of trichloro triazine by different nucleophiles [2].

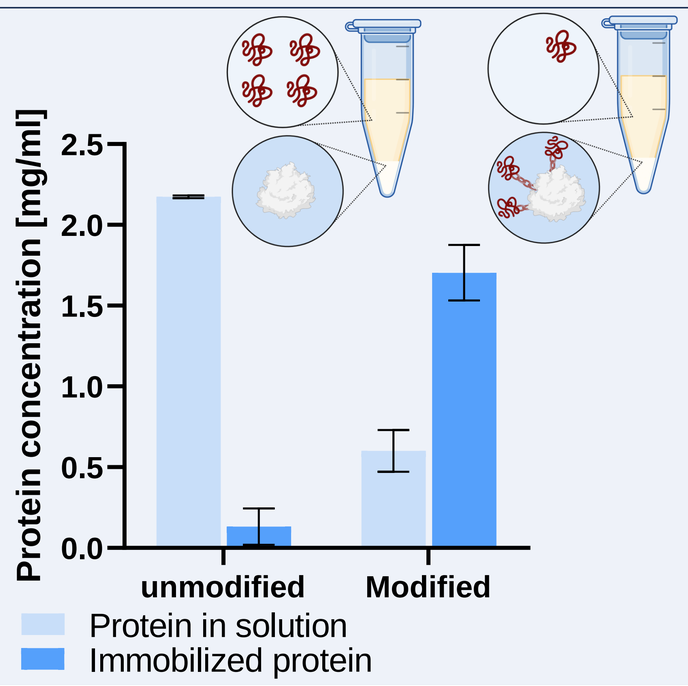


• Step 2: Immobilize

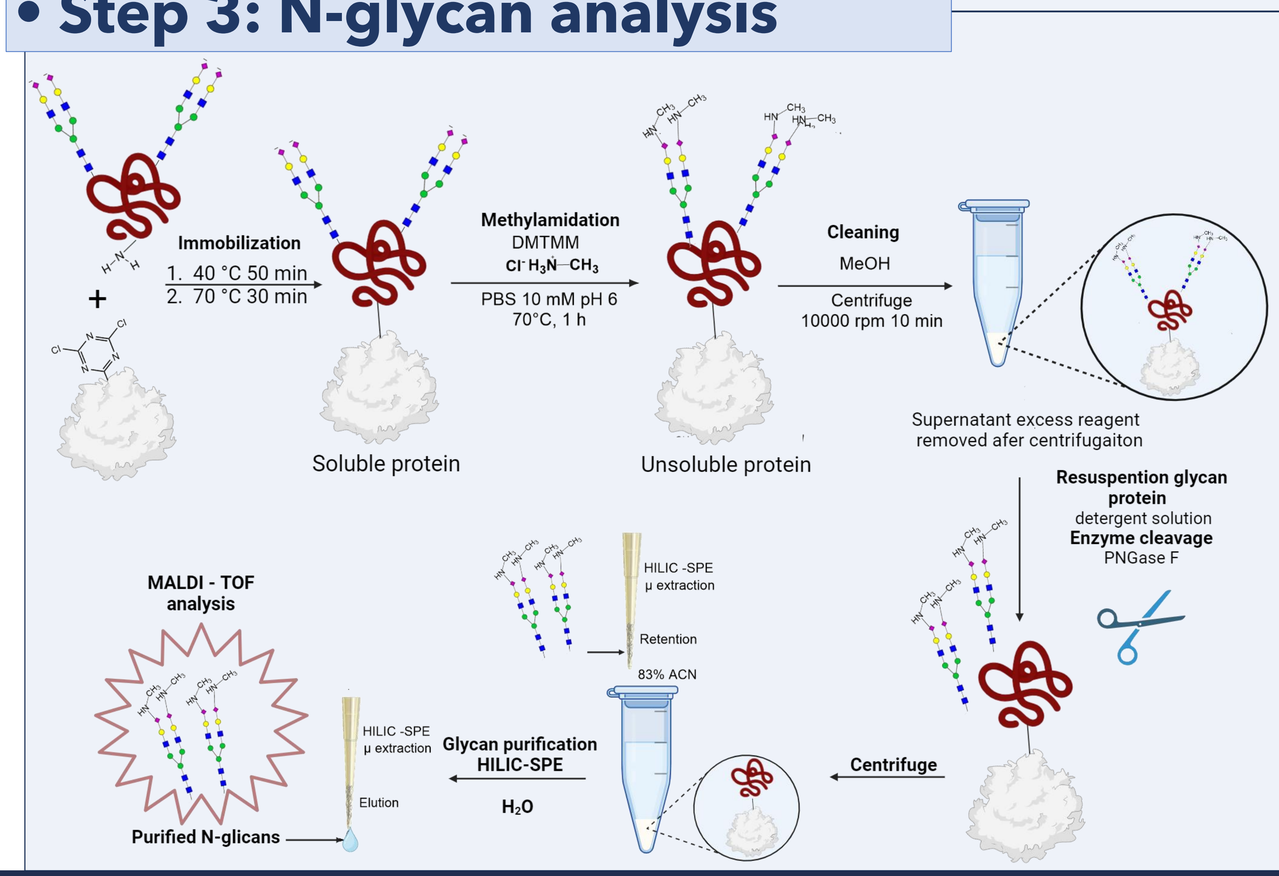
Protein immobilization *via* ***covalent bond*** between the ***ammine group*** of the protein and the modified cellulose.

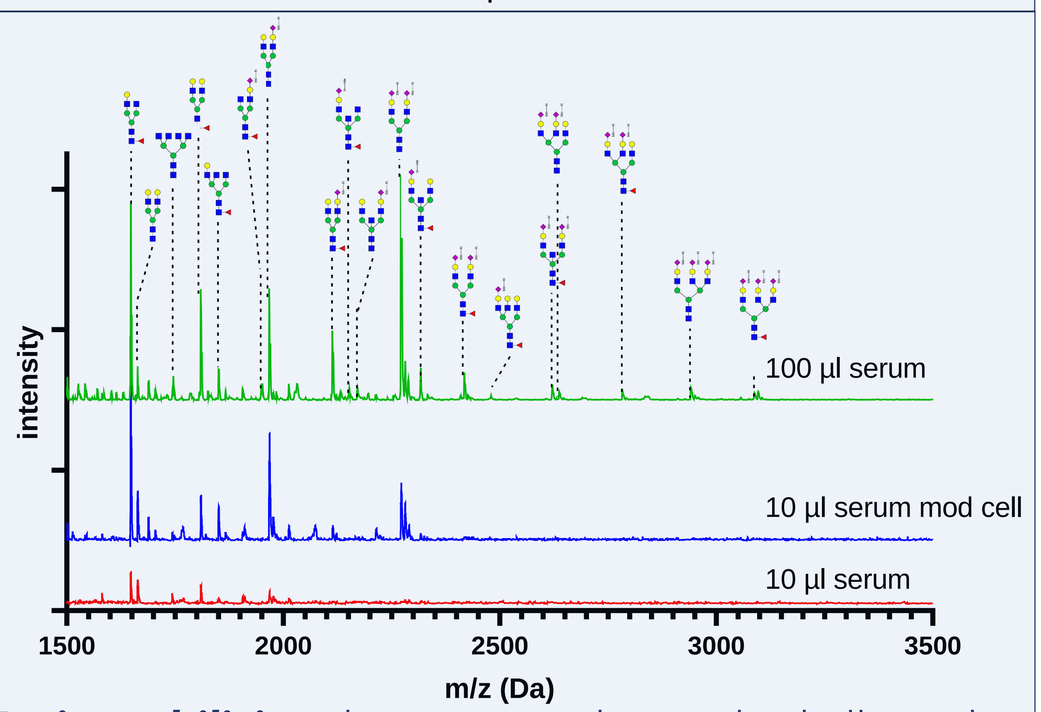


The degree of modification and the temperature of storage of cellulose are of key importance in the immobilization of the protein.



• Step 3: N-glycan analysis





By ***immobilizing*** the proteins, this method allows the analysis and quantification of glycans in ***low amounts of proteins*** (e.g. antibodies).

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References:

[1] Blotny, G. *Tetrahedron* **2006**, *62* (41), 9507–9522.

[2] Sharma et al. *Front. Chem*. **2018**, *6*.

[3] Ret et al. *Talanta*. **2022**; *242*:123326.