

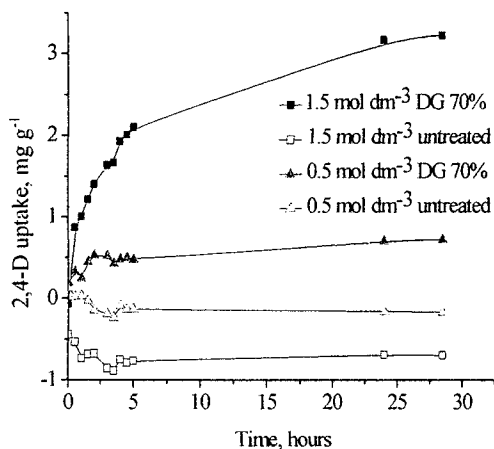
## IMPROVEMENT OF PESTICIDE ADSORPTION CAPACITY OF CELLULOSE FIBRE BY HIGH-ENERGY IRRADIATION-INITIATED GRAFTING OF GLYCIDYL METHACRYLATE

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Sustainable development needs renewable raw materials applied wherever possible. Cellulose is the most abundant biopolymer on earth; various modifications of its properties for special uses are important issues of the research. Some contaminations in wastewaters, e. g. pesticides, are hydrophobic materials; their adsorption on hydrophilic cellulose substrates is very limited. Cotton cellulose was grafted by glycidyl methacrylate in simultaneous grafting using gamma irradiation initiation. Water uptake



of cellulose significantly decreased while adsorption of phenol and a pesticide molecule (2,4-dichlorophenoxyacetic acid: 2,4-D) increased upon grafting. As the figure shows on untreated sample even negative 2,4-D adsorption occurred, due to the selective adsorption of water from the solution; the adsorption did not approach its saturation value even in a 30 hours time period investigated. – Saturation of phenol adsorption was achieved after 5-6 hours; adsorption equilibrium data of phenol fitted the Langmuir isotherm.