

Curriculum Vitae

Name:

Anatoly A. Shatalov

Place of Birth:

Moskvoretsky, USSR

Data of Birth:

01 February 1965

Nationality:

Russian

Institutional Address:

Centro de Estudos Florestais, Universidade Técnica de Lisboa, Instituto Superior de Agronomia, Tapada da Ajuda, 1349-017 Lisboa, Portugal

Telephone:

(+ 351) 21 365 33 79 (Office)

Fax:

(+ 351) 21 365 33 38

E-mail:

anatoly@isa.utl.pt

Academic Degrees, Fields of Study, Awarding Institutions, Dates:

- Ph.D., Organic chemistry (Carbohydrate chemistry), St.-Petersburg Forest Technical Academy, Chemical Engineering Faculty (St.-Petersburg, Russia), 1993.
- M.Sc., Chemical Engineering (Chemistry, chemical and biochemical technology of plant biopolymers), St.-Petersburg Forest Technical Academy, Chemical Engineering Faculty (St.-Petersburg, Russia), classification "excellent", 1987.

Present Position, Institution, Starting Date:

- Research Scientist, Forest Research Centre (CEF), Technical University of Lisbon, Institute of Agronomy, Lisbon, Portugal, 1999.

Previous Positions, Institutions, Dates:

- Research Associate, University of Aveiro, Portugal, 1997-1999.
- Associate Professor, St.-Petersburg Forest Technical Academy, Russia, 1995 to date.
- Assistant Professor, St.-Petersburg Forest Technical Academy, Russia, 1993-1995.

Main Scientific Area of Research - Chemistry, chemical and biochemical technology of plant materials:

- advanced environmentally clean pulping and bleaching technologies;
- papermaking fibers from alternative fiber sources (agro-fiber biomass);
- crop bio-refinery;
- plant biotechnology;
- kinetic simulation of chemical reactions.

Other Scientific Areas of Research - Glycochemistry:

- carbohydrate behavior and reactivity during chemical and biochemical processing;
- polysaccharide (glycoside) isolation, purification and structural characterization using chromatographic, spectroscopic, mass-spectrometric techniques.

Publications:

Thesis

- **Shatalov A. A.** (1993) Kinetics of Acid-Catalyzed Reactions of Hemicellulose Polysaccharide Complex. Ph.D. thesis, St.-Petersburg Forest Technical Academy, St.-Petersburg, Russia, 174 p.
- **Shatalov A. A.** (1987) Protein-Carbohydrate Food Ingredients from Plant Materials. M.Sc. thesis, St.-Petersburg Forest Technical Academy, St.-Petersburg, Russia, 130 p.

Papers in international peer-reviewed journals

- **Shatalov A. A.**, Pereira H. (2010). Molybdo-vanado-phosphate heteropolyanion catalyzed pulp ozonation in acetone/water solution. Part 2. Catalyst re-oxidation, submitted paper.
- **Shatalov A. A.**, Pereira H. (2010). Molybdo-vanado-phosphate heteropolyanion catalyzed pulp ozonation in acetone/water solution. Part 1. Effect of process variables. *Bioresource Technology* 101: 4625-4630; DOI: 10.1016/j.biortech.2010.01.076
- **Shatalov A. A.**, Pereira H. (2009). Polyoxometalate catalyzed ozonation of chemical pulps in organic solvent media, *Chemical Engineering Journal* 155(1-2): 380-387; DOI: 10.1016/j.cej.2009.07.043; <http://dx.doi.org/10.1016/j.cej.2009.07.043>
- **Shatalov A. A.**, Pereira H. (2009). Impact of hexenuronic acids on xylanase-aided bio-bleaching of chemical pulps, *Bioresource Technology* 100(12): 3069-3075; DOI: 10.1016/j.biortech.2009.01.020; <http://dx.doi.org/10.1016/j.biortech.2009.01.020>
- **Shatalov A. A.**, Pereira H. (2008). Effect of xylanases on peroxide bleachability of eucalypt (*E. globulus*) kraft pulp. *Biochemical Engineering Journal* 40(1): 19-26.
- **Shatalov A. A.**, Pereira H. (2008). *Arundo donax* L. reed: New perspectives for pulping and bleaching - 5. Ozone-based TCF bleaching of organosolv pulps. *Bioresource Technology* 99(3): 472-478.
- **Shatalov A. A.**, Pereira H. (2007). Xylanase pre-treatment of giant reed organosolv pulps: direct bleaching effect and bleach boosting. *Industrial Crops and Products* 25(3): 248-256.
- Abrantes S., Amaral E., Costa A. P., **Shatalov A. A.**, Duarte A. P. (2007). Evaluation of giant reed as a raw-material for paper production. *Appita Journal* 60(5): 410-415.
- Abrantes S., Amaral E., Costa A. P., **Shatalov A. A.**, Duarte A. P. (2007). Hydrogen peroxide bleaching of *Arundo donax* L. kraft-antraquinone pulp - Effect of a chelating stage. *Industrial Crops and Products* 25(3): 288-293.
- **Shatalov A. A.**, Pereira H. (2007). Polysaccharide degradation during ozone based TCF bleaching of non-wood organosolv pulps. *Carbohydrate Polymers* 67(3): 275-281.

- **Shatalov A. A.**, Pereira H. (2006). Papermaking fibers from giant reed (*Arundo donax* L.) by advanced ecologically friendly pulping and bleaching technologies. *BioResources* 1(1): 45-61.
- **Shatalov A. A.**, Pereira H. (2005). Kinetics of polysaccharide degradation during ethanol-alkali delignification of giant reed – Part 2. Minor carbohydrates and uronic acids. *Carbohydrate Polymers* 61(3): 304-313.
- **Shatalov A. A.**, Pereira H. (2005). Kinetics of polysaccharide degradation during ethanol-alkali delignification of giant reed – Part 1. Cellulose and xylan. *Carbohydrate Polymers* 59(4): 435-442.
- **Shatalov A. A.**, Pereira H. (2005). Kinetics of organosolv delignification of fibre crop *Arundo donax* L. *Industrial Crops and Products* 21(2): 203-210.
- **Shatalov A. A.**, Pereira H. (2005). *Arundo donax* L. reed: New perspectives for pulping and bleaching - 4. Peroxide bleaching of organosolv pulps. *Bioresource Technology* 96(8): 865-872.
- **Shatalov A. A.**, Pereira H. (2004). Uronic (hexenuronic) acid profile of ethanol-alkali delignification of giant reed *Arundo donax* L. *Cellulose* 11(1): 109-117.
- **Shatalov A. A.**, Pereira H. (2004). *Arundo donax* L. reed: New perspectives for pulping and bleaching - 3. Ethanol reinforced alkaline pulping. *TAPPI Journal* 3(2): 27-31.
- **Shatalov A. A.**, Pereira H. (2002). Ethanol-enhanced alkaline pulping of *Arundo donax* L. reed: influence of solvent on pulp yield and quality. *Holzforschung* 56(5): 507-512.
- **Shatalov A. A.**, Pereira H. (2002). Carbohydrate behaviour of *Arundo donax* L. in ethanol-alkali medium of variable composition during organosolv delignification. *Carbohydrate Polymers* 49(3): 331-336.
- **Shatalov A. A.**, Pereira H. (2002). Influence of stem morphology on pulp and paper properties of *Arundo donax* L. reed. *Industrial Crops and Products* 15(1): 77-83.
- **Shatalov A. A.**, Pereira H. (2001). *Arundo donax* L. reed: New perspectives for pulping and bleaching - 2. Organosolv delignification. *TAPPI Journal* 84(11): 1-14.
- **Shatalov A. A.**, Quilhó T., Pereira H. (2001). *Arundo donax* L. reed: New perspectives for pulping and bleaching - 1. Raw material characterization. *TAPPI Journal* 84(1): 1-12.
- **Shatalov A. A.**, Evtuguin D. V., C. Pascoal Neto (2000). Cellulose degradation in the reaction system O₂/heteropolyanions of series [PMo_(12-n)V_nO₄₀]⁽³⁺ⁿ⁾⁻. *Carbohydrate Polymers* 43(1): 23-32.
- **Shatalov A. A.**, Evtuguin D. V., C. Pascoal Neto (1999). 2-O- α -D-Galactopyranosyl-4-O-methyl- α -D-glucurono)-D-xylan from *Eucalyptus globulus* Labill. *Carbohydrate Research* 320(1-2): 93-99.

- Evtuguin D. V., **Shatalov A. A.**, Zarubin M, Ya. (1994). Polysaccharide degradation by oxygen in aqueous organic solvent media of different nature. 1. Changes in carbohydrate composition during oxygen-organosolv delignification. *Forestry Journal* 3: 64-70.
- **Shatalov A. A.**, Khol'kin Yu. I. (1993). Carbohydrate composition of kinetically homogeneous hemicellulose fractions from pine wood *Pinus silvestris*. *Wood Chemistry* 3: 112-116.
- **Shatalov A. A.**, Khol'kin Yu. I. (1993). Kinetic principles of the hydrolysis reaction of shell hemicelluloses from sunflower seeds. *Chemistry of Natural Compounds* 1: 136-141.
- **Shatalov A. A.**, Khol'kin Yu. I. (1991). Kinetic analysis of acid hydrolysis reaction of hemicellulose complex from *Pinus silvestris*. *Wood Chemistry* 6: 30-36.

Publications in International Congresses and Symposia

- **Shatalov A. A.**, Pereira H. (2010) POM catalyzed ozone bleaching in organic solvent media: effect of pH and ionic strength, 11th European Workshop on Lignocellulosics and Pulp (EWLP), Hamburg, Germany, submitted.
- **Shatalov A. A.**, Pereira H. (2010) Catalyst recovery (re-oxidation) in solvent assisted HPA/ozone bleaching system, 11th European Workshop on Lignocellulosics and Pulp (EWLP), Hamburg, Germany, submitted.
- **Shatalov A. A.**, Pereira H. (2009) ESI-MS/MS of HexA-carrying xylo-oligosaccharides 15th European Carbohydrate Symposium (EUROCARB 15), July 19-24, Vienna, Austria, pp.
- **Shatalov A. A.**, Pereira H. (2009) Heteropolyanion (HPA) catalyzed pulp ozonation in organic solvents. 15th Int. Symp. on Wood, Fibre and Pulping Chem. (ISWFPC), June 15 - 18, Oslo, Norway, pp.
- **Shatalov, A. A.**, Pereira, H. (2009). New highly efficient method of polyoxometalate (POM) catalyzed ozone bleaching of industrial eucalypt (*E. globulus*) kraft pulp. 6^o Congresso Florestal Nacional, Ponta Delgada, Portugal, 6-9 October, 2009, pp.
- **Shatalov A. A.**, Pereira H. (2008) The hexenuronic acid nature of xylanase-assisted direct brightening effect. Proc. 10th European Workshop on Lignocellulosics and Pulp (EWLP), Stockholm, Sweden, pp. 453-456.
- **Shatalov A. A.**, Pereira H. (2008) Improving selectivity of POM-catalyzed ozone bleaching. Proc. 10th European Workshop on Lignocellulosics and Pulp (EWLP), Stockholm, Sweden, pp. 457-460.
- **Shatalov A. A.**, Pereira H. (2007) – “Hexenuronic acids control efficiency of xylanase bleach boosting in bio-bleaching of chemical pulps”. 14th European Carbohydrate Symposium (EUROCARB 14), Lubeck, Germany, pp.
- **Shatalov A. A.**, Pereira H. (2007) – “Non-wood fibers by environmentally friendly pulping and bleaching technologies”, Proceedings, 14th Int. Symp. Wood Fibre Pulping Chem. (ISWFPC), Durban, South Africa, pp.

- **Shatalov A. A.**, Pereira H. (2007) – “On effect of xylanase pre-treatment on hydrogen peroxide bleachability of *Eucalyptus globulus* kraft pulp”, Proceedings, 14th Int. Symp. Wood Fibre Pulping Chem. (ISWFPC), Durban, South Africa, pp.
- **Shatalov A. A.**, Pereira H. (2006) – “Enzyme-aided TCF bleaching of non-wood organosolv pulps”, 9-th European Workshop on Lignocellulosics and Pulp (EWLP), Vienna, Austria, pp. 502-505.
- **Shatalov A. A.**, Pereira H. (2006) - “A novel approach for kinetic description of plant polymers degradation during delignification”, 9-th European Workshop on Lignocellulosics and Pulp (EWLP), Vienna, Austria, pp. 506-509.
- **Shatalov A. A.**, Pereira H. (2005) – “Ozone based TCF bleaching of non-wood organosolv pulps”, Proceedings, 13th Int. Symp. Wood Fibre Pulping Chem. (ISWFPC), Auckland, New Zealand, Appita Annual Conference, Vol. 2, pp. 609-613.
- **Shatalov A. A.**, Pereira H. (2005) – “Hexenuronic acids in TCF bleaching of organosolv pulps”, Proceedings, 13th Int. Symp. Wood Fibre Pulping Chem. (ISWFPC), Auckland, New Zealand, Appita Annual Conference, Vol. 3, pp. 355-357.
- **Shatalov A. A.**, Pereira H. (2004) – “Improved delignification kinetics of *Arundo donax* L. as a way to increase the quality of non-wood papermaking fibres”, 2-nd World Conference on Biomass for Energy, Industry and Climate Protection, 10-14 May 2004, Rome, Italy, pp. 1974-1977.
- **Shatalov A. A.**, Pereira H. (2004) - “Papermaking fibres from giant reed (*Arundo donax* L.) by sulfur-free pulping and chlorine-free bleaching”, 2-nd World Conference on Biomass for Energy, Industry and Climate Protection, 10-14 May 2004, Rome, Italy, pp. 1939-1942.
- Abrantes S., Amaral E., Costa A. P., **Shatalov A.**, Duarte A. P. (2004) - “Giant reed pulps – bleaching studies and papermaking characterisation. A comparative study with an industrial eucalypt bleached pulp”, accepted for presentation during the Iberoamerican Congress on Pulp and Paper Research. Spain, pp.
- **Shatalov A. A.**, Pereira H. (2003) - “Influence of organosolv pulping process on TCF bleachability of *Arundo Donax* L. pulps”. Proceedings, 12-th Int. Symp. on Wood and Pulping Chemistry (ISWPC), Madison, USA, pp. 109-112.
- **Shatalov A. A.**, Pereira H. (2003) - “Hexenuronic acids in ethanol-alkali pulping”. Proceedings, 12-th Int. Symp. on Wood and Pulping Chemistry (ISWPC), Madison, USA, pp. 113-116.
- Duarte P., Abrantes S., Amaral E., Costa A. P., **Shatalov A. A.**, Pereira H. (2003) - “Study of papermaking potential of giant reed and Cynara Thistle. A comparison with eucalypt pulp”. Proceedings, International Conference on Chemical Technology of Wood, Pulp and Paper, Bratislava, Slovakia, pp. 96-101.
- Abrantes S., Amaral E., Costa A. P., **Shatalov A. A.**, Pereira H., Duarte A. P. (2003) - “Chemical pulp production from *Arundo donax* L. by kraft-anthraquinone process and TCF bleaching”. Proceedings, 12-th Int. Symp. on Wood and Pulping Chemistry (ISWPC), Madison, USA, pp. 281-284.

- Abrantes S., Amaral E., Costa A. P., **Shatalov A. A.**, Pereira H., Duarte A. P. (2003) – “*Arundo donax* L. and *Cynara cardunculus* L.: alternative sources of cellulosic fibers for paper and paperboard production”. Proceedings, 28-th EUCEPA Int. Conference, Lisbon, Portugal, p. 285-287.
- **Shatalov A. A.**, Pereira H. (2001) - “Uronic acid groups conversion in ethanol-alkali medium of variable composition during organosolv delignification of *Arundo donax* L.”. Proceedings, 11-th European Carbohydrate Symposium, Lisbon, Portugal, pp. 423.
- **Shatalov A. A.**, Pereira H. (2000) - “*Arundo donax* L. (giant reed) as a source of fibres for paper industry: Perspectives for modern ecologically friendly pulping technologies”. Proceedings, 1-st World Conference on Biomass for Energy and Industry, Sevilla, Spain, James & James Ltd, UK, Vol. 2, pp. 1183-1186.
- **Shatalov A. A.**, Pereira H. (2000) - “Organosolv pulping of *Arundo donax* L. as an alternative to the kraft process for production of high quality non-wood fibres”. Proceedings, 6-th European Workshop on Lignocellulosics and Pulp (EWLP), Bordeaux, France, pp. 571-574.
- **Shatalov A. A.**, Pereira H. (2000) - “Structure of heteroxylan from *Eucalyptus globulus* L. and its transformation during kraft delignification”. Proceedings, 20-th International Carbohydrate Symposium, Hamburg, Germany, pp. 370.
- **Shatalov A. A.**, Evtuguin D. V., C. Pascoal Neto (1999) - “Unusual xylan from *Eucalyptus globulus* L.”. Proceedings, 10-th Int. Symp on Wood Pulping Chem. (ISWPC), Yokogama, Japan, pp. 40-43.
- **Shatalov A. A.**, Evtuguin D. V., C. Pascoal Neto (1998) - “Cellulose behaviour in molybdovanadophosphate heteropolyanions catalysed aerobic oxidation”. Proceedings, 5-th European Workshop on Lignocellulosics and Pulp (EWLP), Aveiro, Portugal, pp. 353-356.
- **Shatalov A. A.**, Khol’kin Yu. I. (1995) - “Reactivity of hemicellulose polysaccharides complex of some untraditional vegetable materials in acid hydrolysis reaction”. Proceedings, 8-th Int. Symp. on Wood and Pulping Chemistry (ISWPC), Helsinki, Finland, Vol. 2, pp. 483-488.
- Evtuguin D. V., **Shatalov A. A.**, Kostukevich N. G. (1995) - “Degradation of polysaccharides under conditions of oxygen delignification in organic solvent media”. Proceedings, 8-th Int. Symp. on Wood and Pulping Chemistry (ISWPC), Helsinki, Finland, Vol. 2, pp. 325-330.
- **Shatalov A. A.** (1995) - “Kinetic aspects of the polysaccharide complex degradation under acid catalysed conditions”. Proceedings, 11-th Int. Symp. on Cellulose Chemistry and Technology (ISCCT), Iasi, Romania, pp.12-14.
- Evtuguin D. V., **Shatalov A. A.** (1995) – “Kinetics of polysaccharides removal during oxygen-organosolv delignification of aspen wood”. Proceedings, 11-th Int. Symp. on Cellulose Chemistry and Technology (ISCCT), Iasi, Romania, pp.36-37.
- **Shatalov A. A.**, Khol’kin Yu. I. (1994) - “The estimation of wood polysaccharides complex reactivity in acid-catalysed reactions”. Proceedings, 3-d European Workshop on Lignocellulosics and Pulp (EWLP), Stockholm, Sweden, pp.197-199.

- **Shatalov A. A.**, Khol'kin Yu. I. (1992) – “Kinetic peculiarities of acid hydrolysis of non-cellulosic polysaccharides of various plant materials”. Proceedings, Int. Symp. on Biomass Structure, Hydrolysis and Biotechnology, St.-Petersburg, Russia, pp. 14-15.