

CURRICULUM VITAE - THOMAS BØHN

Nationality: Norwegian
Born in Oslo April 7th 1969. Live in Tromsø.

Present positions:

Research Professor/ Forsker 1
GenØk – Centre for Biosafety

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Research interests

My research interests are focused on the impact of modern biotechnologies, especially genetically modified organisms (GMOs) on experimental model systems and on real food-webs. I am particularly interested in risk assessment and effect studies of products of modern biotechnologies. With cooperating partners, we have multiple model systems available for research: from microorganisms to mammals, both in the laboratory and in the field. My primary research focus has been on the food quality and ecotoxicity of GM plants (e.g. Bt-maize and Roundup Ready soy), plant products (Cry-toxins) and co-technology herbicides (glyphosate, Roundup, etc.) using the waterflea *Daphnia magna* model. In the field, I work with impacts of modern biotechnologies on biodiversity and food-webs, both in terrestrial and aquatic systems. I also have great interest in gene flow, modeling, invasion biology, ecology and evolution.

Key performance indicators (Jan. 2016):

Number of publications:	58
Research gate score:	31.55 (higher than 87.5 % of members)
Research gate impact:	167.56
H-factor:	19 (Google scholar)
Citations:	1307 (Google scholar)

Selected 10 most influential papers and research areas

Research area 1 – Quality of herbicide tolerant GM soy/glyphosate toxicity

Documenting that herbicide tolerant GM soy on the market accumulates high concentrations of glyphosate, and that this reduces the food/feed quality. Further documenting chronic toxicity at very low concentrations of glyphosate and Roundup.

- (1) **Bøhn, T.**, Cuhra, M., Traavik, T., Sanden, M., Fagan, J. & Primicerio, R. 2014. Compositional differences in soybeans on the market: glyphosate accumulates in Roundup Ready GM soybeans. *Food Chemistry* 153: 207-215. **Most downloaded paper in Food Chemistry late 2014/early 2015.**
- (2) Cuhra, M., Traavik, T., Dando, M., Primicerio, R., Holderbaum, D. and **Bøhn, T.** 2015. Glyphosate-residues in Roundup-ready soybean impair *D. magna* life-cycle. *Journal of Agricultural Chemistry and Environment* 4: 24-36.
- (3) Cuhra, M., Primicerio, R., Traavik, T. & **Bøhn, T.** 2014. Life-cycle fitness differences in *D. magna* fed Round-Ready soybean or conventional soybean or organic soybean. *Aquaculture Nutrition*. doi: 10.1111/anu.12199.
- (4) Cuhra, M., Traavik, T. and **Bøhn, T.** 2013. Clone- and age-dependent toxicity of a glyphosate commercial formulation and its active ingredient in *Daphnia magna*. *Ecotoxicology*, **22** (2): 251-262. DOI 10.1007/s10646-012-1021-1.

Research area 2 – establishing *Daphnia magna* as a food/feed model and providing new findings on effects of Bt-transgenic maize

The studies have shown unexpected negative effects of Bt-transgenic maize in a non-target model organism. These studies have been central to the European controversy over GMOs, including in the ban of MON810 Bt maize in Germany and other countries.

- (5) **Bøhn, T.**, Primicerio, R., Hessen, D.O. and Traavik, T. 2008. Reduced fitness of *Daphnia magna* fed a Bt-transgenic maize variety. *Archives of Environmental Toxicology and Chemistry*. **55**. 584-592.: DOI 10.1007/s00244-008-9150-5. (**Recommended** by Faculty of 1000 Expert guide to the most important advances in biology as **New Finding** - <http://f1000biology.com>)
- (6) **Bøhn, T.**, Traavik, T. and Primicerio, R. 2010. Demographic responses of *Daphnia magna* fed transgenic Bt-maize. *Ecotoxicology* **19**: 419-430. DOI 10.1007/s10646-009-0427-x. (Open Access).
- (7) Wickson, F., **Bøhn, T.**, Wynne, B., Hilbeck, A. and Funtowicz, S. 2013. Science based risk assessment requires careful evaluation of all studies. *Nature Biotechnology* **31** (12): 1077-1078.

Research Area 3 – Modeling studies on the reversal of antimicrobial drug resistance

- (8) Johnsen, P.J., Townsend, J.P., **Bøhn, T.**, Simonsen, G.S., Sundsfjord, A., Nielsen, K.M. 2009. Factors affecting the reversal of antimicrobial drug resistance. *Lancet Infectious Diseases* **9**: 357-364.

Research Area 4 – Documenting that transgenes spread beyond control in traditional African farming systems

- (9) Iversen, M., Grønsberg, I.M., van den Berg, J., Fischer, K., Aheto, D.W., **Bøhn, T.** 2014. Detection of transgenes in local maize varieties of small-scale farmers in the Eastern Cape, South Africa. *Plos One*. DOI: 10.1371/journal.pone.0116147.

Research Area 5 – Contributions to the theoretical understanding of ecological processes and evolution as being part of biodiversity

- (10) **Bøhn, T.** & Amundsen, P.-A. 2004. Ecological interactions and evolution – forgotten parts of biodiversity? Viewpoint *Bioscience* **54** (9): 804-805.

(**Recommended** by Faculty of 1000 Expert guide to the most important advances in biology as a **Must Read** - <http://f1000biology.com>)

External grant awards (personal)

- 1998-2002 Personal PhD research grant from the Norwegian Research Council (Program on Biodiversity), approx. 360.000 Euro.
- 2003-2007 Personal post doc individual research grant from the Norwegian Research Council (Program on Biodiversity), approx. 410.000 Euro.
- 2008-2012 Personal Research grant (two positions) from the Norwegian Research Council (Miljø2015), approx. 820.000 Euro.
- 2014-2015 Peder Sæther Center for Advanced Study Grant Award, UC Berkeley with Prof Ignacio Chapela. Project title: “Distributive Mapping of Microbes in a Changing World”, 20.000 USD.

Academic positions

- 1998-2002 Ph.D. at Norwegian College of Fishery Sciences, University of Tromsø
- 1999-2000 Member of the board, Norwegian College of Fishery Sciences.
- 2002-2009 Senior researcher: Leader of Section for Ecology and Ecosystem modeling, GenØk – Centre for Biosafety, Norway.
- 2004-2005 Visiting Professor (6 months), University of Canterbury, Christchurch, New Zealand.
- 2008-2010 Member of the Norwegian Scientific Committee for Food Safety
- 2009-2010 Leader Department of Biology, GenØk.
- 2011-2012 Scientific Director, GenØk – Centre for Biosafety, Tromsø, Norway
- 2011-2012 Associate Professor of Gene Ecology, University of Tromsø, Norway
- 2012-2014 Professor of Gene Ecology, University of Tromsø, Norway
- 2012-2013 Program Director Gateways Institutes HUB Southern Africa
- 2013- Senior Researcher, GenØk.

National and International posters and presentations 2015

- 2015 Talk “GMO – bra for hvem?” Litteraturhuset, Oslo, May 11.
- 2015 Talk “Contamination of soy for food and feed by intended use of herbicides: The case of Roundup Ready GM soy”. Conference *Food Safety and Regulatory Measures*, Birmingham 17-19 Aug.
- 2015 Expert group on “Limits of concern”. Umweltbundesamt GmbH. Vienna. Sept. 21-22.
- 2015 Talk “GMO med omega-3 – bra for helsa og miljøet?” Litteraturhuset, Oslo, October 12.
- 2015 Talk “Accumulation of glyphosate in food and feed by intended use of herbicides: The case of Roundup Ready GM soy”. For the Biotechnology Advisory Board, Oslo October 27.
- 2015 Invited talk: “Glyphosate contamination of GM soy into food and feed chains”. International conference: Assessment and regulation of GMOs and pesticides, Paris November 12-13.
- 2015 Talk: “Contamination of soy for food and feed by intended use of herbicides: The case of Roundup Ready GM soy”, Conference *Food Chemistry and Technology*, San Francisco, November 16-18.
- 2015 Talk: “GMO Pesticides, Food Security, Human and Animal Health”, UC Berkeley at National Laboratories, November 19th.

2015 Talk: "Accumulation of glyphosate into herbicide tolerant GM plants, UC Berkeley at Microbial Ecology, November 19th.

Scientific publications with peer review: 2014 – 2015

(53) Fagan, J., Traavik, T. and **Bøhn, T.** 2015. The Séralini affair: the rise of Re-Science? *Environmental Sciences Europe* **27**:19. Open access. DOI: 10.1186/s12302-015-0049-2.

(52) **Bøhn, T.**, Cuhra, M., Fagan, J. and Traavik, T. 2015. Are ready for market genetically modified, conventional and organic soybeans substantially equivalent as food and feed? p. 181-191 in: *Genetically Modified Organisms (GMO) Foods: Production, Regulation and Public Health*. Eds. Ronald Watson and Victor Preedy.

(51) Holderbaum, D.F., Cuhra, M., Wickson, F., Orth, A.I., Nodari, R.O. & **Bøhn, T.** 2015. Chronic responses of *Daphnia magna* under dietary exposure to leaves of transgenic (event MON810) Bt-maize hybrid and its conventional near isoline. *Journal of Toxicology and Environmental Health Part A: Current Issues* **78**(15): 998-1007. Open access.

(50) Andreassen, M., **Bøhn, T.**, Wikmark, O.-G., Van Den Berg, J., Løvik, M., Traavik, T. and Nygaard, U.C. 2015. Cry1Ab protein from *Bacillus thuringiensis* and MON810 *cry1ab*-transgenic maize exerts no clear adjuvant effects after airway exposure in mice. *Scandinavian Journal of Immunology* **81**:192-200. Open access. doi: 10.1111/sji.12269.

(49) Cuhra, M., Traavik, T., Dando, M., Primicerio, R., Holderbaum, D. and **Bøhn, T.** 2015. Glyphosate-residues in Roundup-ready soybean impair *D. magna* life-cycle. *Journal of Agricultural Chemistry and Environment* **4**: 24-36.

(48) Iversen, M., Grønsberg, I.M., van den Berg, J., Fischer, K., Aheto, D.W., **Bøhn, T.** 2014. Detection of transgenes in local maize varieties of small-scale farmers in the Eastern Cape, South Africa. *Plos One*. Open access DOI: 10.1371/journal.pone.0116147.

(47) Andreassen, M., Rocca, E., **Bøhn, T.**, Wikmark, O.-G., Van Den Berg, J., Løvik, M., Traavik, T. and Nygaard, U.C. 2014. Humoral and cellular immune responses in mice after airway administration of *Bacillus thuringiensis* Cry1Ab and MON810 *cry1ab*-transgenic maize. *Food and Agricultural Immunology* <http://dx.doi.org/10.1080/09540105.2014.988128>.

(46) **Bøhn, T.**, Cuhra, M., Traavik, T., Sanden, M., Fagan, J. & Primicerio, R. 2014. Reply to Letter to the editor. *Food Chemistry*. Published online 27 August. DOI: 10.1016/j.foodchem.2014.08.042.

(45) Okeke, M.I., Okoli, A.S., Nilssen, Ø., Moens, U., Tryland, M., **Bøhn, T.**, Traavik, T. 2014. Molecular characterization and phylogenetics of Fennoscandian cowpox virus isolates based on the p4c and atip genes. *Virology Journal* **11**:119.

(44) Cuhra, M., Primicerio, R., Traavik, T. & **Bøhn, T.** 2014. Life-cycle fitness differences in *D. magna* fed Round-Ready soybean or conventional soybean or organic soybean. *Aquaculture Nutrition*. doi: 10.1111/anu.12199.

(43) **Bøhn, T.**, Cuhra, M., Traavik, T., Sanden, M., Fagan, J. & Primicerio, R. 2014. Compositional differences in soybeans on the market: glyphosate accumulates in Roundup Ready GM soybeans. *Food Chemistry* **153**: 207-215. **Most downloaded paper in Food Chemistry.**

(42) Nielsen, K., **Bøhn, T.** and Townsend, J.P. 2014. Detecting rare gene transfer events in bacterial populations. *Frontiers in Microbiology* **4** (415): 1-12 (Focused Review). doi: 10.3389/fmicb.2013.00415.