

CURRICULUM VITAE

NAME: Hilde Beate Molvig KOPPERUD
ADRESSE: Norway
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YEAR OF BIRTH: 1968
FAMILY: Married, two children

CURRENT POSITION

Head of laboratory at NIOM, Nordic Institute of Dental Materials (Oslo, Norway), since September 2011. Responsible for the laboratory, the quality system (accredited laboratory according to ISO 17025), the technical staff, and material testing. Managing research projects. Deputy director.

PREVIOUS POSITIONS

- 2003-2011: Senior scientist at NIOM. Research on polymer-based biomaterials. Responsible for the chemical activities at the institute. Management and participation in research projects. International standardisation (ISO).
- Apr-Sept 2006: Senior scientist at Ignis Display AS (Horten, Norway, now poLight). Development of a polymer gel for display technology.
- 2001-2003: Scientist at Photonix (Horten, Norway). Responsible for the chemical activities in the development of a polymer gel for electro-optical components.
- July 1992: Analysis (GC), Crépin Analyses et Contrôles, Rouen, France.
- July 1991: Analysis of water and soil samples, Laboratoire Solaigue, Nîmes, France.

EDUCATION

- 1994 - 2001: Dr.scient., Department of chemistry, University of Oslo (UiO), Norway.
- 1990 - 1994: Cand.scient., Department of chemistry, UiO, Norway.
- 1988 - 1989: French language, UiO, Norway.
- 1987 - 1988: French language, Institut Savoisien d'Etudes Françaises, Université de Savoie and Chambre de Commerce et d'Industrie de Paris, France.

SELECTED POST-GRADUATE COURSES

- 2014-2015: Leadership, "Ord-til-handling", Larvik, Norway
- Dec 2012: Health, environment and safety, Oslo, Norway
- Jan 2012: Sample preparation, Sandefjord, Norway.
- Nov 2008: GC/MS Chemstation software (Agilent), Oslo, Norway.
- Feb 2006: Analysis and structure determination in LC-MS, UiO, Norway.
- Nov 2005: Introduction to standardisation, Standards Norway.
- May 2005: Project management and organisation, Sandvika, Norway.
- March 2002: Working in a clean room, r³ Nordic, Stockholm, Sweden.

INTERNATIONAL STANDARDISATION

- 2003 - today: Appointed expert in ISO/TC106 Dentistry and participation at annual working group meetings. Convener of SC2/WG10 Resilient lining materials 2005-2017. Expert in CEN/TC 55/WG 7 (since 2017).
- 2004: Participation at the meeting of ISO TC 194 Biological evaluation of medical devices. Appointed expert of WG14 Material characterization.

TEACHING, SUPERVISING, OPPONENT

Lecturing in polymer-based dental materials at Oslo University College of Applied Sciences (Norway), University of Aarhus (Denmark), courses at NIOM and the Norwegian Dental Association. Opponent to PhD-thesis and defense (25.2.2016) of Bahram Ranjkesh (DDS) at Aarhus University, Health, Denmark, entitled « Novel fast-setting calcium silicate with fluoride (Protooth): comparative studies on mechanical properties, apatite precipitation in experimental gaps, and cytotoxicity». Assessment committee: Josette Camilleri, Hilde Molvig Kopperud, Ann Wenzel, supervisor Henrik Løvschall.

Co-supervisor of MSc T Knarvang (2015). Co-supervisor of PhD-candidate Roberto Belloti at the University of Tromsø, Norway.

Evaluation of stud. odont. Niels Østervemb recipient of a scholarship 2008-2009, based on a report (Shade guide optimization and Evaluation of the esthetic properties of four composite materials) and presentation/examination of the research project (5.3.2010).

OPINIONS / Governmental reports

- A. SCENIHR (Scientific Committee on Emerging and Newly Identified Health Risks), Safety of the use of bisphenol A in medical devices, 18 February 2015. ISBN 978-92-79-30133-9. Member of working group as external expert.

LANGUAGE and SKILLS

English: Very good (fluent)
French: Good
Swedish: Good
Danish: Good
German: Some
Computer skills: Very good

PUBLICATIONS

Articles and book chapters (peer-reviewed, except for *):

33. * Kopperud HM. Komposittmaterialer - utlekkning av monomer og cytotoxisitet. *Nor Tannlegeforen Tid* 2017; 127: 882-3.
32. Nguyen LG, Kopperud HM, Øilo M. Water sorption and solubility of polyamide denture base materials. *Acta Biomater Odont Scand* 2017; 3(1):4 7-52.
31. Kopperud SE, Rukke HV, Kopperud HM, Bruzell EM. Light curing procedures - Performance, knowledge level and safety awareness among dentists. *J Dent* 2017; <http://dx.doi.org/10.1016/j.jdent.2017.02.002>
30. Kopperud HBM, Peutzfeldt A. Kompositte materialer - basale egenskaper. *Tandlægebladet* 2016; 120: 984-992. *Nor Tannlegeforen Tid* 2016; 116: 848-56.
29. Dragland IS, Valen H, Lönn-Stensrud J, Kopperud HM. Antibacterial and anti-biofilm effect of low viscous chitosan against *Staphylococcus epidermidis*. *Intern J Microbiology*, Volum 2016, Article ID 9159761, 7 pages, <http://dx.doi.org/10.1155/2016/9159761>.
28. Testai E, Hartemann P, Rodríguez-Farre E, Chandra Rastogi S, Bustos J, Gundert-Remy U, Hensten A, Kopperud HM, Olea N, Piersma A, De Jong W. The safety of the use of bisphenol A in medical devices. *Regul Toxicol Pharmacol* 2016; 79: 106-7.
27. Nguyen S, Adamczak M, Hiorth M, Smistad G, Kopperud HM. Interactions of liposomes with dental restorative materials. *Colloids Surf B Biointerfaces* 2015; 136: 744-51.
26. Dragland IS, Kopperud HM. Chitosan – antibakteriell bruk i dentale materialer. In: Holmstrup P (ed.), *Odontologi 2015 - Aktuell Nordisk Odontologi*, København, Munksgaard, 2015; pages 97-109.
24. * Kopperud HM, Bruzell E. Nytt fra NIOM; Retningslinjer for lysherding i odontologi. *Nor Tannlegeforen Tidende* 2014; 124: 910. *Tandläkartidningen* 2014; 15: 58-9.
23. Kopperud HM, Johnsen GF, Lamolle S, Kleven IS, Wellendorf H, Haugen HJ. Effekt av kort herdetid på kjemiske og mekaniske egenskaper til kompositter. (Norwegian) *Nor Tannlegeforen Tid* 2014; 124: 356-62.
22. Cornelio RB, Wikant A, Mjøsund H, Kopperud HM, Haasum J, Gedde UW, Örtengren UT. The influence of bis-EMA on the degree of conversion and water sorption and solubility of dental composite materials. *Acta Odont Scand* 2014; 72(6): 440-7.

21. Lodienè G, Kopperud HM, Ørstavik D, Bruzell EM, Detection of leachables and cytotoxicity after exposure to methacrylate- and epoxy-based root canal sealers in vitro. *Eur J Oral Sci* 2013; 121: 488-96.
20. Kopperud HM, Johnsen JF, Lamolle T, Kleven IS, Wellendorf H, Haugen HJ. Effect of short LED lamp exposure on wear resistance, residual monomer and degree of conversion for Filtek Z250 and Tetric EvoCeram composites. *Dent Mater* 2013; 29: 824-34.
19. Ansteinsson V, Kopperud HB, Morisbak E, Samuelsen JT. Cell toxicity of methacrylate monomers - the role of glutathione adduct formation. *J Biomed Mater Res: Part A* 2013; 101(12): 3504-10.
18. Cornelio RB, Kopperud HM, Haasum J, Gedde U, Örtengren U. Influence of different mould materials on the degree of conversion of dental composite resins. *Braz J Oral Sci* 2012; 11(4): 469-74.
17. Hautamäki MP, Puska M, Kopperud HM, Aho AJ, Vallittu PK. Surface structure of fiber-reinforced composite implant and its effect on the attachment of implant to simulating bone material, in *Repair of segmental bone defects with fiber-reinforced composite*, PhD Dissertation of Mikko Hautamäki, Turku, Finland, ISBN 978-951-29-5237-3. As well as: "Surface modification of fiber reinforced polymer composites and their attachment to bone simulating material" *J Mater Sci Mater Med* 2013; 24(5): 1145-52.
16. Michelsen VB, Kopperud HM, Lygre GB, Björkman L, Jensen EP, Kleven IS, Svahn J, Ström MB, Lygre H. Detection and quantification of monomers in unstimulated whole saliva after treatment with resin-based composite fillings *in vivo*. *Eur J Oral Sci* 2012; 120: 89-95.
15. von Kageneck JG, Kopperud HM, Kleven IS, Dahl JE. Helserisiko ved bruk av resinforsterket glassionomermateriale til barn. (Norwegian) *Nor Tannlegeforen Tid* 2011; 121(6): 360-3.
14. Kopperud HBM, Finger WJ, Hørsted-Bindslev P. Moderne tannfargede fyllingsmaterialer. (Norwegian) *Nor Tannlegeforen Tid* 2011; 121: 34-9. *Tandläkartid* 2011; 103: 88-94. *Tandlægebl* 2011; 115: 44-50. (Finnish) *Suomen Hammasl* 2011: 34-40.
13. Samuelsen JT, Kopperud HM, Holme J, Dragland I, Christensen T, Dahl JE. Role of thiol-complex formation in 2-hydroxyethyl-methacrylate-induced toxicity in vitro. *J Biomed Mater Res: Part A*. 2011; 96A: 395-401.
12. Kopperud HM, Kleven IS, Wellendorf H. Identification and quantification of leachable substances from polymer-based orthodontic base-plate materials. *Eur J Orthod* 2011; 33: 26-31.
11. Kopperud HM, Schmidt M, Kleven IS. Elution of substances from a silorane-based dental composite. *Eur J Oral Sci* 2010; 118(1): 100-2.
10. Kopperud HM. Komposita fyllningsmaterial. (Swedish) Art. nr 2008-123-2, Kunskapsdokument från Kunskapscenter för dentala material (KDM), Socialstyrelsen, Stockholm. 2008.
9. Kopperud HM, Derand T. Plastfyllinger og nanoteknologi. (Norwegian) I: Holmstrup P, red. *Aktuel nordisk odontologi* 2008. København: Munksgaard Danmark, 2008; s. 101-10.
8. * Dahl JE, Kopperud HM. Spør NIOM - Komposittfyllinger - suksess eller fiasko? (Norwegian) *Nor Tannlegeforen Tid* 2008; 118: 40-1. *Tandlægebladet* 2007; 111(14): 1104-5. *Tandläkartidningen* 2008; 100(4); 68-9.
7. Kopperud HM. Polymerbaserte tannfyllingsmaterialer - en undersøkelse av viktige egenskaper. (Norwegian) *Nor Tannlegeforen Tid* 2007; 117: 954-60.
6. Becher R, Kopperud HM, Al RH, Samuelsen JT, Morisbak E, Dahlman HJ, Lilleaas EM, Dahl JE. Pattern of cell death after in vitro exposure to GDMA, TEGDMA, HEMA and two compomer extracts. *Dent Mater* 2006; 22(7): 630-40.
5. * Kopperud, HM. Spør NIOM - Hvor holdbare er komposittmateriale? (Norwegian) *Nor Tannlegeforen Tid* 2005; 115: 780-2. *Tandläkartidningen* 2005; 97(13): 66. *Tandlægebladet* 2005; 109(14): 1148-50. (Finnish: Kysy NIOMilta - Yhdistelmämuovien kestävyys) *Suomen Hammaslääkärilehti* 2005; 20: 1198-200.
4. Kopperud HBM, Hansen FK. Surface tension and surface dilatational elasticity of associating hydrophobically modified polyacrylamides in aqueous solutions. *Macromolecules* 2001; 34(16): 5635-43.

3. Kopperud HBM, Walderhaug H, Hansen FK. Polymer self-diffusion and surfactant binding in aqueous solutions of unmodified and hydrophobically modified polyacrylamide studied by pulsed field gradient NMR and surface tension measurements. *Macromol Chem Phys* 1999; 200(8): 1839-45.
2. Ostrovskii D, Jacobsson P, Nyström B, Marstokk O, Kopperud HBM. Raman spectroscopic characterization of association and thermoreversible gelation in aqueous systems of poly(N-acetamidoacrylamide). *Macromolecules* 1999; 32(17): 5552-60.
1. Kopperud HM, Hansen FK, Nyström B. Effect of surfactant and temperature on the rheological properties of aqueous solutions of unmodified and hydrophobically modified polyacrylamide. *Macromol Chem Phys*. 1998; 199(11): 2385-94.

Oral presentations:

Tips for success in light curing. HM Kopperud. NIOM Webinar. 30th May 2017.

What's cooking? Effects of "high" intensity curing lights and a little more... E Bruzell and HM Kopperud at Light Curing in Dentistry, Dalhousie University, Halifax, Canada, 2015.

Composites and curing anno 2015. HM Kopperud at The NIOM seminar - "white and light". Icelandic Dental Association, Reykjavik, Iceland, 2015.

Influence of exposure time on the depth of cure. HM Kopperud at Light Curing in Dentistry, Dalhousie University, Halifax, Canada, 2014.

European perspectives on standardization of dental materials. HM Kopperud. Seminar: Efforts for International Standardization of Dental Materials and Devices. Arr: The Japanese Society for Dental Materials and Devices, Japan Research Council on Dental Products, at *Tokyo Medical and Dental University*. Tokyo, Japan, September 27, 2013 (invited).

New and established composite materials: Composition and elution. HM Kopperud. PER/IADR Helsinki, Finland, 2012.

Feeding tubes for neonates - leaching of plasticizers in food simulating solutions and resulting changes in mechanical properties.

- HM Kopperud, NR Gjerdet. *European Cells and Materials Vol. 23. Suppl. 5, 2012 (p 20)*. ScSB 5th annual meeting, Uppsala, Sweden, 2012.

Leaching from Dental Composites. Kopperud HM, NIOM Seminar: NIOM and Challenges in Future Biomaterials Research, Oslo, Norway, 2011.

Composition and leachable products from polymer-based orthodontic materials. Kopperud HM, Kleven IS, Wellendorf H. International Association for Dental Research, Amsterdam, Netherlands, 2005.

Poster presentations:

Chitosan modified zinc-oxide-eugenol cement increases antimicrobial activity. I Dragland, IS Stenhagen, H Wellendorf, H Kopperud, H Valen. CED-IADR, Vienna, 2017.

Chitosan incorporated in denture base resin reduce biofilm formation of *Streptococcus mutans* and *Candida albicans*. HV Rukke, ISR Stenhagen, IS Dragland, HBM Kopperud. Scandinavian Society for Biomaterials 10th meeting: Underlying Challenges in Biomaterials. Norway, 2017.

Leakage of Bisphenol A from dental materials. R Becher, H Wellendorf, AK Sakhi, H Kopperud. Sponsor: JE Dahl. Society of Toxicology, USA, 2017.

Liposome adsorption to restorative materials. S Nguyen, M Adamczak, M Hiorth, G Smistad, HM Kopperud. Academy of Dental Materials (ADM), Chicago, USA, 2016.

- Dent Mater 2016;32S:e25 (abstract).

Chitosan and chitosan-oligosaccharide as antimicrobial agents in ZOE restorative materials. IS Dragland, ISR Stenhagen, HBM Kopperud, H Valen. PAN-International Association for Dental Research (PAN-IADR), Jerusalem, Israel, 2016.

Anti-biofilm Effect of Methylated Chitosan Incorporated Denture Base Resin. ISR Stenhagen, H Valen, IS Dragland, HBM Kopperud. International Association for Dental Research (IADR), Seoul, South Korea, 2016.

Physical properties and toxic potential of dental composite containing a triazol-monomer. T Knarvang, HM Kopperud, JT Samuelsen. 27th European conference on Biomaterials, Krakow, Poland, 2015. Best student poster presentation: Knarvang.

Flexural, flexural fatigue and flexural creep strength of four bulk-fill resin composites at room and body temperatures. JE Tibballs, H Wellendorf, HM Kopperud, European Dental Materials Conference, Nürnberg, Germany, 2015.

- Special Issue EJPRD, 2015, p37.

Solubility and sorption of flexible polyamide denture base materials. Nguyen LG, Kopperud HM, Øilo M. Scandefa / Årskursus, København, Danmark, 2015.

Leaching of monomers from bulk-fill composites. Kopperud HM, Kleven IS, Knarvang T, Wellendorf H. Academy of Dental Materials, Bologna, Italy, 2014.

- Dental Materials, Vol. 30, e46. <http://dx.doi.org/10.1016/j.dental.2014.08.091>

Mechanical Properties of Bioactive Glass Modified PMMA Composites. Aho AJ, Hupa L, Moritz N, Kopperud H, and Vallittu PK, International Association for Dental Research (IADR)/Pan European Congress, Dubrovnik, Croatia, September 10-13, 2014

Antibiofilm properties of chitosan. Dragland IS, Lönn-Stensrud J, Valen HR, Kopperud HM. European antibiotic awareness day", Oslo, Norway, 2014.

Pull-out strengths of surface modified FRC-implants to material simulating bone. M Puska, M Hautamäki, AJ Aho, HM Kopperud, P Vallittu. Abstract no. 416, CED-IADR, Florence, Italy, 2013.

Antibacterial effects of native and methacrylate modified chitosan. IS Dragland, T Knarvang, HM Kopperud. Scandinavian Society for Biomaterials 6th meeting: Materials for tissue engineering. Hafjell, Norway, 2013.

- Eur Cells Mater 2013; 26 Suppl 2: 2.

Mould materials' influence on degree of conversion of dental resins. RB Cornelio, HM Kopperud, J Haasum, U Gedde, U Ørtengren. Academy of Dental Materials, Trieste, Italy, 2010.

- Dental Materials, 26S, e23. doi:10.1016/j.dental.2010.08.057

Hydroxyapatite nanoparticles in dental composites and adhesives. M Andersson, HM Kopperud. Scandinavian Society for Biomaterials 3rd meeting: Interfacing biology and materials. Hafjell, Norway, 2010.

Monomers detected in saliva after treatment with composite fillings. VB Michelsen, G Moe, HM Kopperud, IS Kleven, GB Lygre, J Svahn, MB Strøm, L Bjørkman, E Jensen, H Lygre. Abstract n. 110, International Association for Dental Research, London, UK, 2008.

Quantitative determination of monomers leached from orthodontic materials. HM Kopperud, IS Kleven, H Wellendorf. Abstract n. 435, International Association for Dental Research, London, UK, 2008.

Rheological properties of aqueous solutions of low molecular weight hydrophobically modified poly(acrylamide). HM Kopperud, FK Hansen, B Nyström. Second international symposium on dynamics and organisation of associating polymers in solution, Fontevraud, France, 1997.

Studies of hydrophobically modified poly(acrylamide). HB Molvig, FK Hansen, J Roots. Associating polymers, Loen, Norway, 1995.

Ph.D-thesis:

“Solution and surface properties of hydrophobically modified polyacrylamide”, Hilde Beate Molvig Kopperud, University of Oslo, 2001, ISSN: 1501-7710.