

References

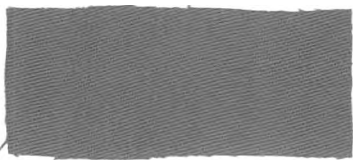



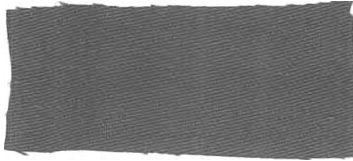
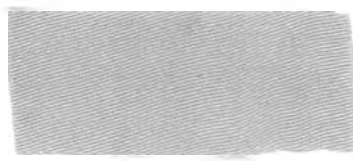
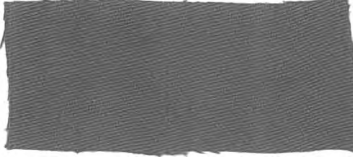
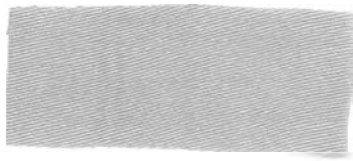
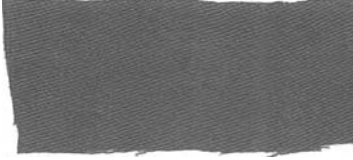

1. D. M. Lewis and K. A. McIlroy. *The chemical modification of cellulosic fibres to enhance dyeability*. Rev. Prog. Coloration 27 (1997): 5-17.
2. J. P. Luttringer. *A New Generation of Reactive Dyes for Cotton*. Textile Chemist and Colorist 25, 5 (1993): 25-29.
3. C. M. Carliell, S. J. Barclay, and C. A. Buckley. Treatment of Exhausted Reactive Dye bath Effluent using Anaerobic Digestion: Laboratory and Full-scale Trials. <http://www.und.ac.za/>
4. D. M. Lewis and X. P. Lei. *Improved Cellulose Dyeability by Chemical Modification of the Fiber*. Textile Chemist and Colorist 21, 10 (1989): 23-29.
5. D. M. Lewis. *Coloration 2000*. Journal of the Society of Dyers and Colorists 113 (1997): 193-196.
6. Edward Miller. Textiles Properties and Behaviour. London: William Clowers & Sons, 1973.
7. C. Czihak, G. Vogl, M. Muller, H. Schober and Y. Nishiyama. *Are all disordered regions of native cellulose of the same nature?* <http://www.ill.fr/AR-99/page/13polym.htm/>
8. J. R. Aspland. *The Application of Anions to Nonionic Fibers: Cellulosic Fibers and Their sorption of Anions*. Textile Chemist and Colorist 23, 10 (1991): 14-20.
9. W. Ingamells. *Colour for textiles: A user's handbook*. London: The Society of Dyers and Colorists. 1993.
10. John Shore. *Cellulosics Dyeing*. The Society of Dyers and Colorists. 1995.
11. D. R. Waring, G. Hallas, eds. The chemistry and application of dyes. 2nd ed. New York: Plenum press, 1994.

12. Y. Li and I. R. Hardin. *Enzymatic Scouring of Cotton: Effects on Structure and Properties*. Textile Chemist and Colorist 29, 9 (1997): 71-76.
13. R. T. O'Connor. Instrumental Analysis of Cotton Cellulose and Modified Cotton Cellulose. New York: Marcel Dekker, 1972.
14. P. Pomsuriyasak. Chemical Modification of Cellulosic Fibers to Improve Fixation of Reactive Dyes. Chulalongkorn University, (1997): 11-12.
15. Clifford Preston. The Dyeing of Cellulosic Fibers. The Dyer's Company Publications Trust, 1986.
16. Taher and Cates. Text. Chem. Colorist 7 (1975).
17. Steinmiller and Cates. Text. Chem. Colorist 8 (1976).
18. Wilfred Ingamells. *Colour for textiles, A user's handbook*. Society of Dyers and Colourists, 1993.
19. Heinrich Zollinger. Color Chemistry. VCH Verlagsgesellschaft mbH, Germany, 1987.
20. R. David Waring and Geoffrey Hallas. The Chemistry and Application of Dyes. New York: Plenum Press, 1990.
21. C. L. Bird and W. S. Boston. The Theory of Coloration of Textiles. The dyer's Company Publications Trust, 1975.
22. P. Larpsuriyakul. Modification of Cotton Fabric with a Cationic Reactive Polymer in Bleaching to Improve Reactive Dyeability. Chulalongkorn University, (2000): 23-25
23. D. M. Lewis and K. A. McIlroy. *The chemical modification of cellulosic fibres to enhance dyeability*. Rev. Prog. Coloration 27 (1997).
24. M. Hartmann. Cellulose Ethers. USP 1,777,970 (1930).
25. D. M. Soignet, R. R. Benerito, and J. B. McKelvey. Journal of Applied Polymer Science. 11 (1967): 10-15.
26. E. A. El-Alfy, S. S. Aggour, M. H. Mardini, and A. Hebeish. Amer. Dyestuff Rep. 76 (1986): 33-44.

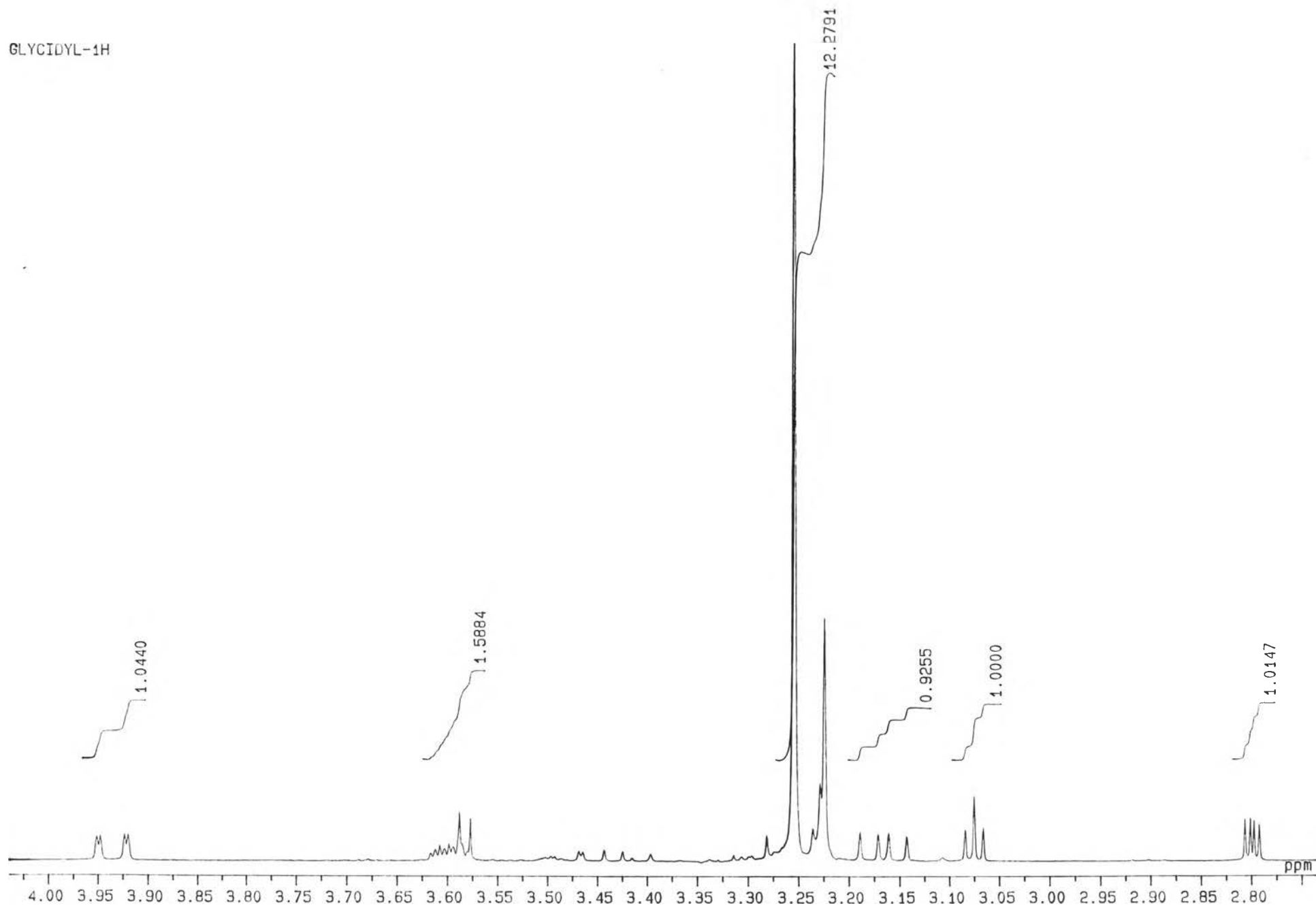
27. W. Tsui et al. Journal of Applied Polymer Science. 32 (1986): 40-50.
28. X. P. Lei and D. M. Lewis. Dyes Pigments. 16 (1991).
29. G. E. Evans, J. Shore, and C. V. Stead. Journal of the Society of Dyers and Colorists. 100 (1984): 304-315.
30. A. Waly, R. Rafia, M. H. El-Rafie, and A. Hebeish. American Dyestuff Reporter. 79 (1990): 34-41.
31. J. M. Taylor. International Conference on the Chemistry and Application of Reactive Dyes Book of Papers. Leeds, 1989.
32. S. M. Burkinshaw, X. P. Lei, and D. M. Lewis. Journal of the Society of Dyers and Colorists. 105 (1989): 391-397.
33. T. S. Wu and K. M. Chen. Journal of the Society of Dyers and Colorists. 108 (1992): 307-315.
34. T. S. Wu and K. M. Chen. Journal of the Society of Dyers and Colorists. 109 (1993): 153-158.
35. T. S. Wu and K. M. Chen. Journal of the Society of Dyers and Colorists. 109 (1994): 259-265.
36. M. Sakamoto, Y. Yamada, N. Ojima, and H. Tonami. Journal of Applied Polymer Science. 17 (1973): 102-108.
37. T. L. Vigo and E. J. Blanchard. Text. Chem. Colorist. 19 (1987): 98-105.

Appendix

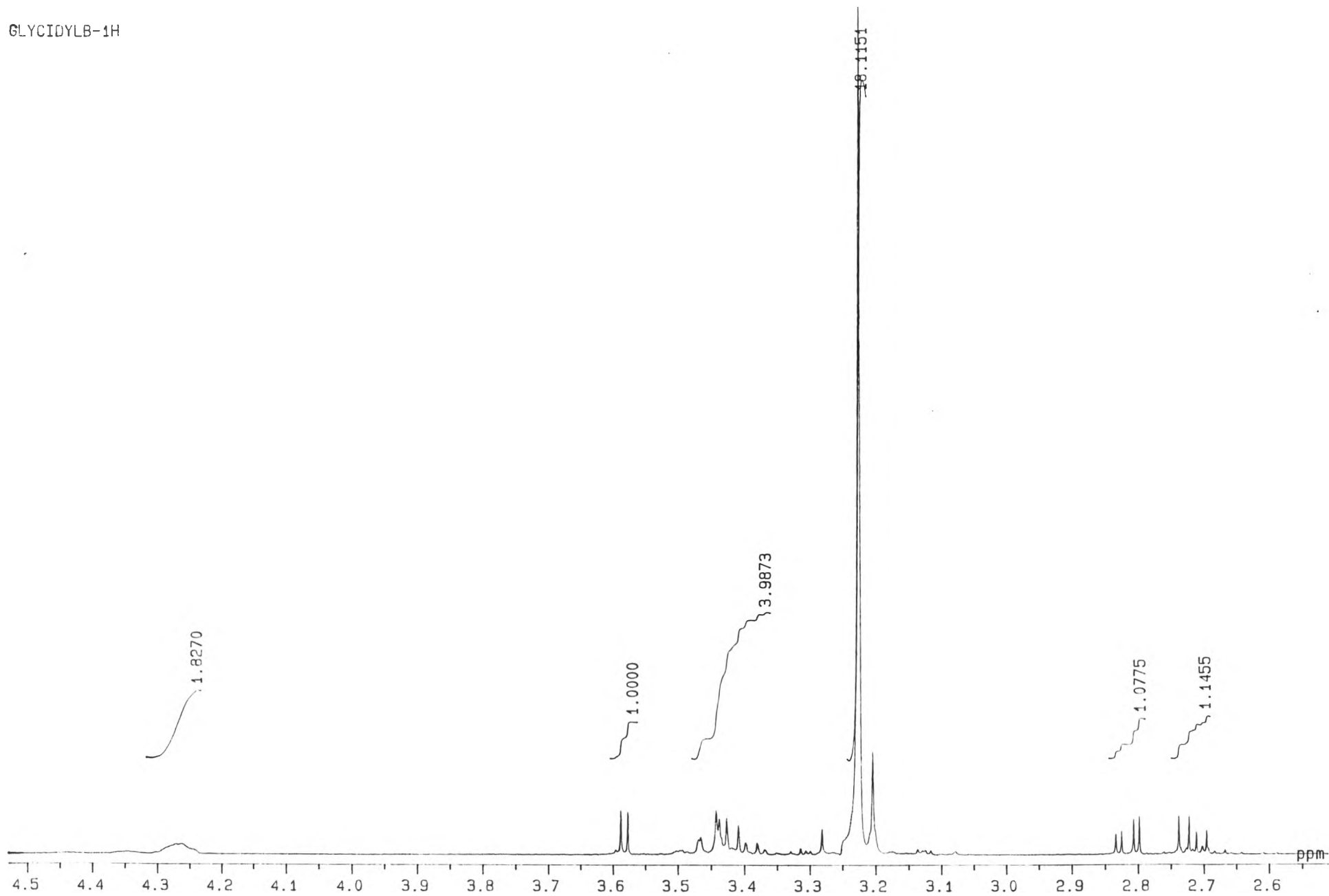
**Examples of unmodified and modified cotton fabrics dyed with
2% owf Reactive dyes [Procion Crimson CX-B (red)
and Modercion Yellow]**

Concentrations of Modifying agent (g/l)	Modified Cotton	Modified Cotton
0 (unmodified cotton)		
10		
20		
30		
40		

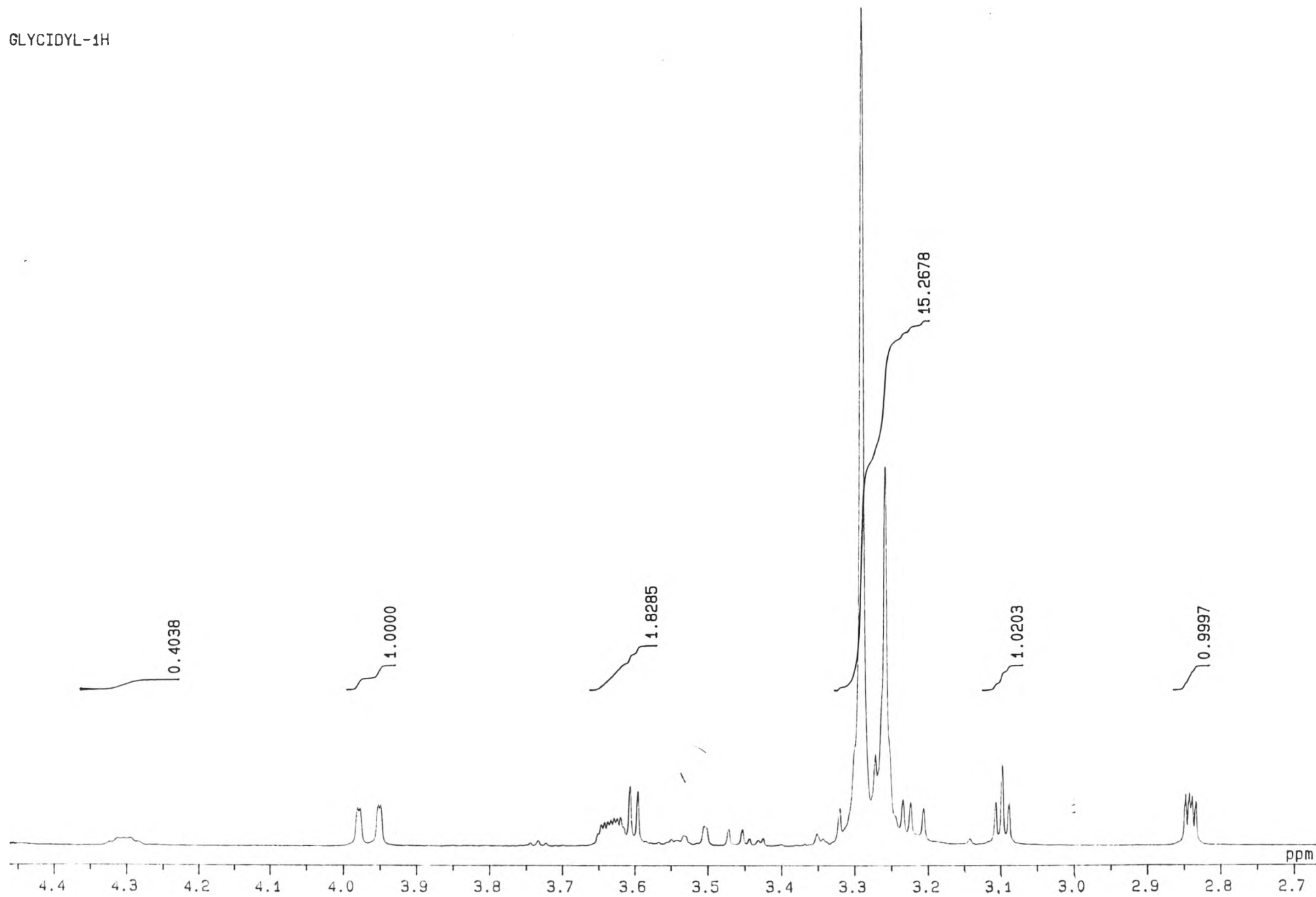
GLYCIDYL-1H



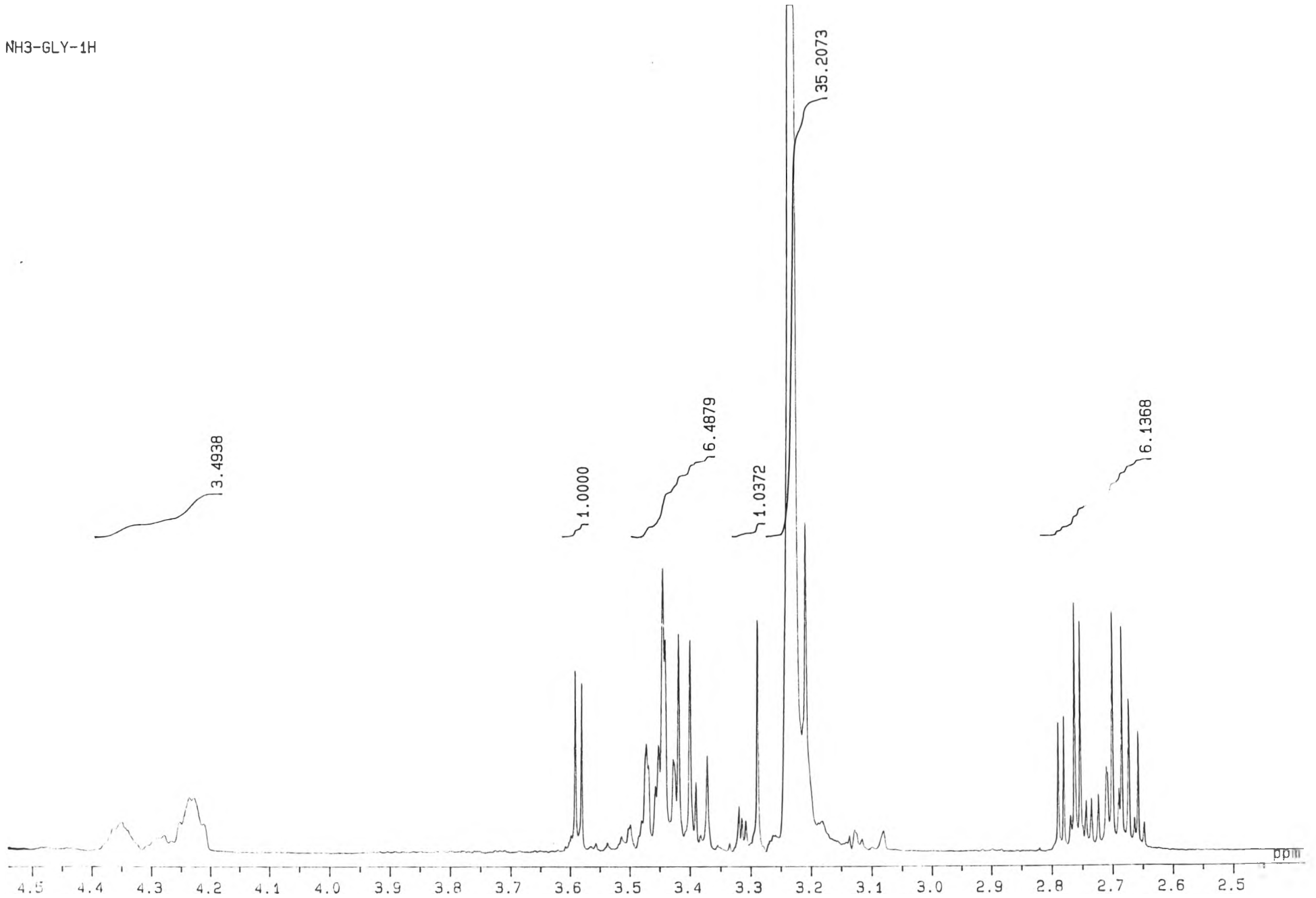
GLYCIDYL B-1H



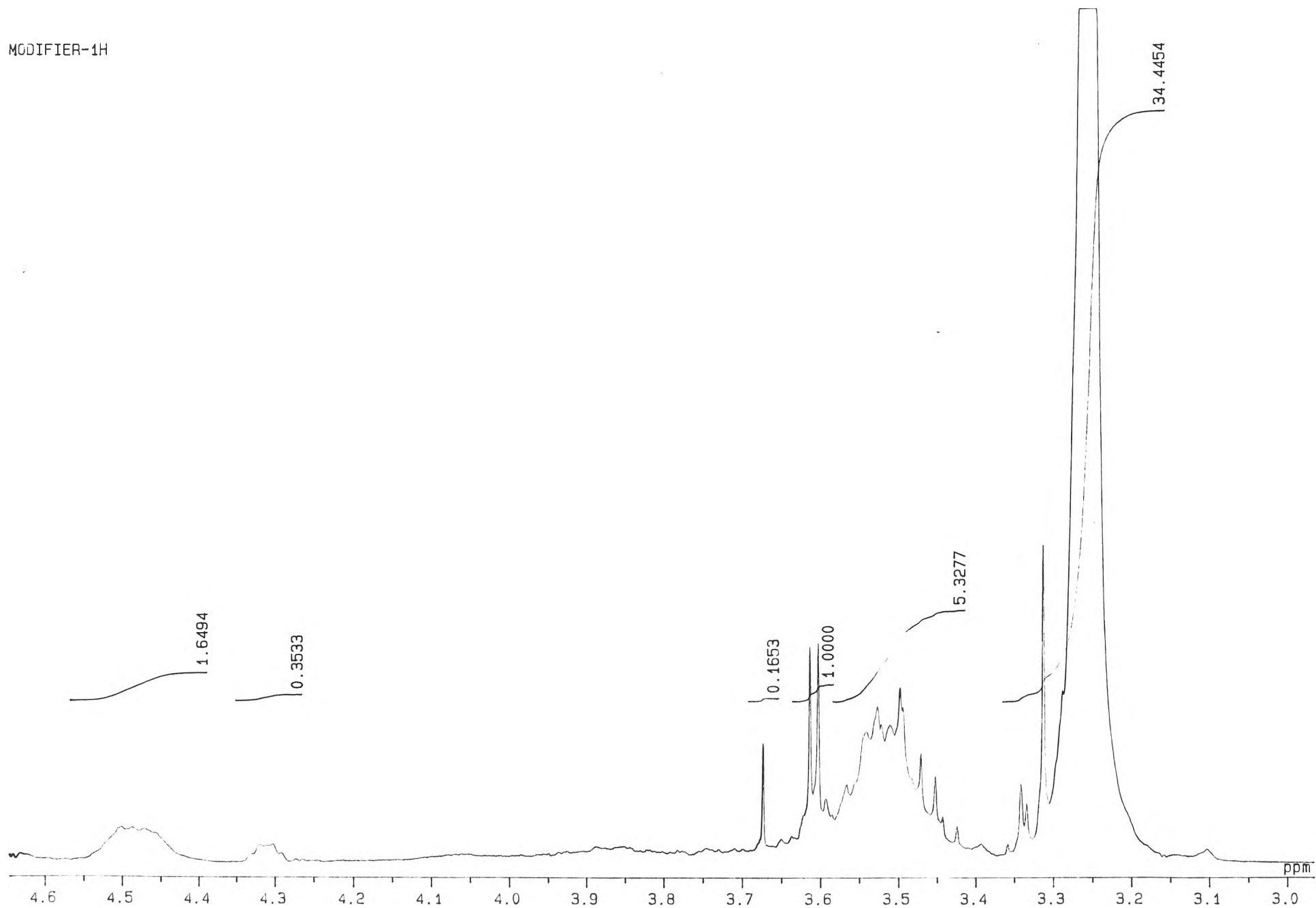
GLYCIDYL-1H



NH3-GLY-1H



MODIFIER-1H



Biography

Miss Pulsiri Rattananiyomkul was born in Bangkok, Thailand, on October 21, 1976. She received a Bachelor of Science degree with a major in Materials Science from Chulalongkorn University in 1999. She started as a graduate student in the Department of Materials Science with a major in Applied Polymer Science and Textile Technology, Chulalongkorn University in June 1999, and completed the programme in October 2001.

