Supporting Information

A catechol-functionalized synthetic polymer as a dental adhesive to contaminated dentin surface for a composite restoration

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1. ^{1}H NMR spectra of protected poly(DMA-MEA)(TBDMS)$_2$ and deprotected poly(DMA-MEA)
2. Lap Shear Strength Data
3. Micro Tensile Bond Strength (μ-TBS) Data.

1. ^{1}H NMR spectra of protected poly(DMA-MEA)(TBDMS)$_2$ and deprotected poly(DMA-MEA)

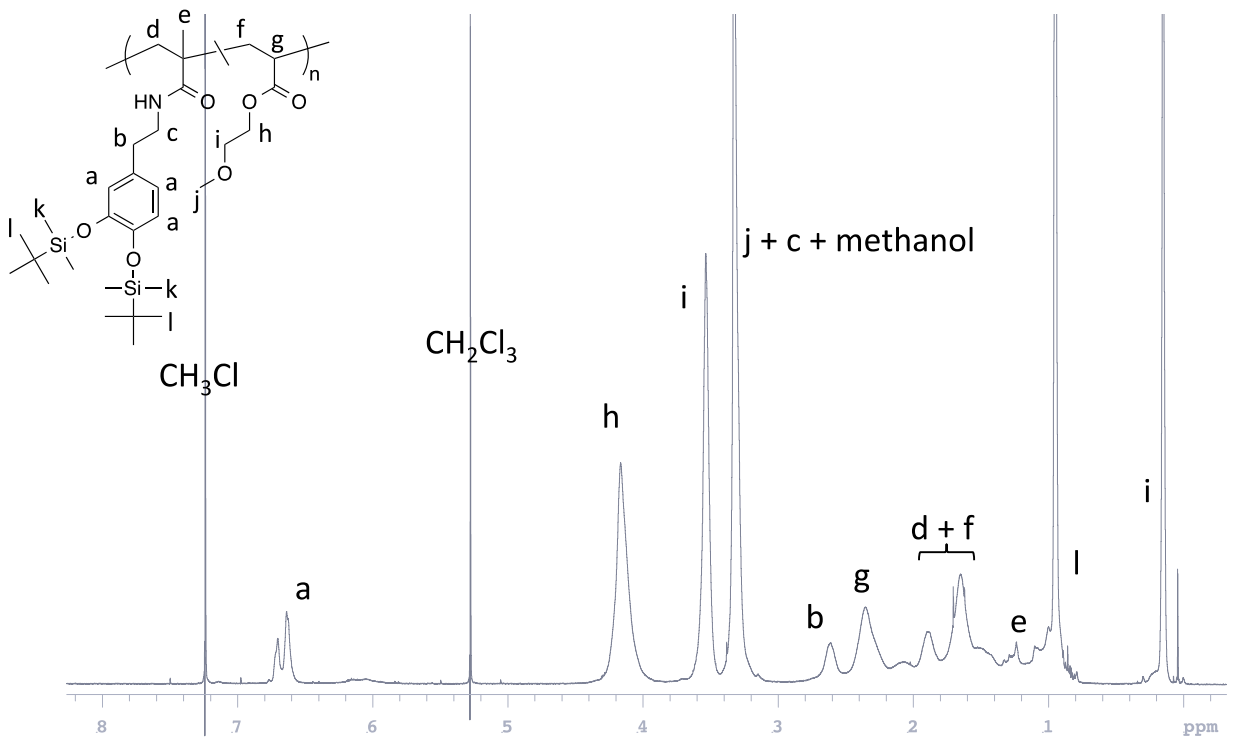

Figure S1. ^{1}H NMR spectra of poly(DMA-MEA)(TBDMS)$_2$ in CD_3OD.

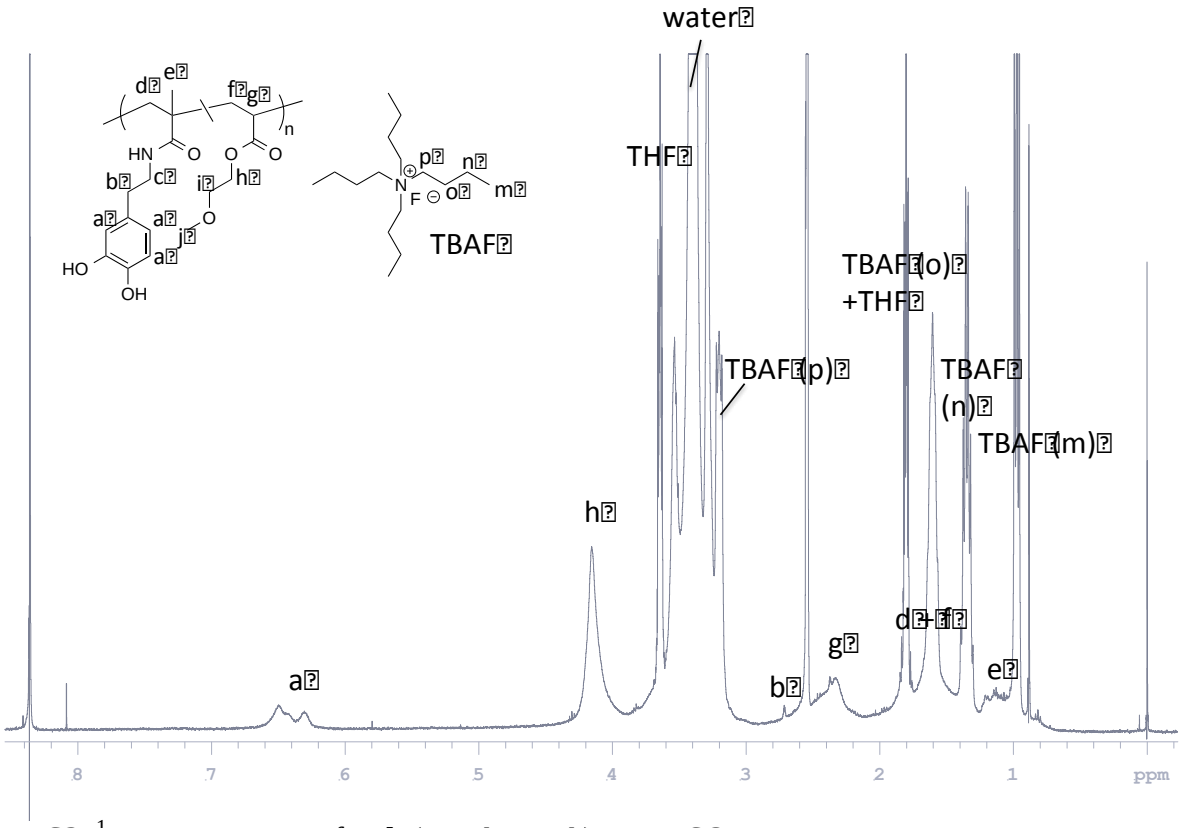

Figure S2. ^{1}H NMR spectra of **poly(DMA-MEA)** in DMSO

2. Lap Shear Strength (L-SBS) Data.

Table S1. Preparation and bonding strength of poly(DMA-MEA) with various amounts of water

Substrates	Bonding resin [a] (μg)	poly(DMA-MEA) [b] (μg)	D.I. Water[c] (μL)	Storage condition after bonding [d]	L-SBS (KPa)
Glass	-	400	0.5(0.9)	HV/RT/72 hrs	106 (±36)
Glass	-	400	1.0(1.4)	HV/RT/72 hrs	589 (±106)
Glass	-	400	2.0(2.4)	HV/RT/72 hrs	1,164 (±163)
Glass	-	400	3.0(3.4)	HV/RT/72 hrs	1,114 (±113)
Glass	-	400	4.0(4.4)	HV/RT/72 hrs	1,129 (±33)
Glass	400	-	0.5	HV/RT/72 hrs	1,127 (±151)
Glass	400	-	1.0	HV/RT/72 hrs	665 (±151)
Glass	400	-	2.0	HV/RT/72 hrs	480 (±113)
Glass	400	-	3.0	HV/RT/72 hrs	418 (±61)
Glass	400	-	4.0	HV/RT/72 hrs	0

a) 2μL of bonding resin solution in methanol (200μg/mL) was added to glass surfaces.
b) 2μL of polymer solution in water/methanol (1:4) (200μg/mL) was added to glass surfaces.
c) The amount of water added to the surfaces. The numbers presented in the parenthesis is the total amount of water from 2μL of polymer solution in water/methanol (1:4) (0.4μL of water) and added water
d) The prepared glass samples were dried under high vacuum (HV) at room temperature (RT) for 72 hours.

Table S2. Preparation and bonding strength of poly(DMA-MEA) with various salivary contaminants and Fe^{3+} additive

Additives (salivary contaminates)	Additive (μL)	Polymer[a] (μg)	Storage condition after bonding [b]	L-SBS (KPa)
None[c]	0	800	HV/RT/72 hrs	136 (±28)
BSA[d]	2	800	HV/RT/72 hrs	357 (±94)
W/M[e]	2	800	HV/RT/72 hrs	326 (±85)
WO/M[f]	2	800	HV/RT/72 hrs	913 (±176)
DI[g]	2	800	HV/RT/72 hrs	1,645 (±256)
Fe[h]	2	800	HV/RT/72 hrs	91.9 (±23)

a) 4μL of polymer solution (200μg/mL) was added to glass surfaces.
b) The prepared glass samples were dried under high vacuum (HV) at room temperature (RT) for 72 hours.
c) None : No treatment to glass surface before the bonding procedure
d) BSA: 35% bovine serum albumin solution

e) W/M: artificial saliva containing mucin component
f) WO/M: artificial saliva without mucin component
g) DI: distilled water
h) Fe: 80 mM Fe^{3+} solution.

3. Micro Tensile Bond Strength (μ-TBS) Data.

Table S3. Comparison in tensile bond strength between poly(DMA-MEA) and commercial adhesives

Adhesives	Tensile bond strength (MPa)					
	None	W/M	WO/M	BSA	W/M+Fe	Fe
AE[c)]	41.8 (±8.3)	8.1 (±4.9)	14.5 (±8.7)	- [b)]	9.1(±0.7)	12.5(±2.2)
SE[d)]	12.4 (±2.8)	6.3 (±1.3)	0[a)]	- [b)]	- [b)]	- [b)]
poly(DMA-MEA) with AE[c)]	8.4 (±3.9)	12.9 (±2.6)	- [b)]	9.2 (±2.0)	17.9 (±2.5)	28.8 (±5.9)

a) The sample was not bonded.
b) Not detected strength
c) Acid-etching bonding agent (Scotchbond Multi-Purpose[R])
d) Self-etching bonding agent (BeautiBond[R])