Supplementary Information

Fast synthesis of amides from ethyl salicylate under microwave radiation and solvent-free system

Rafaely N. Lima[a], Valdenizia R. Silva[b], Luciano de S. Santos[b], Daniel P. Bezerra[b], Milena B. P. Soares[b], André L. M. Porto[a*]

[a]Laboratório de Química Orgânica e Biocatálise, Instituto de Química de São Carlos, Universidade de São Paulo, Av. João Dagnone, 1100, Ed. Química Ambiental, Santa Angelina, 13563-120, São Carlos-SP, Brazil. Tel.: +55 16 33738103; Fax: + 55 16 33739952; e-mail: almporto@iqsc.usp.br*.
[b]Fundação Oswaldo Cruz, Centro de Pesquisas Gonçalo Moniz, R. Waldemar Falcão, 121, 40296-710, Candeal, Salvador-BA, Brazil.

Summary

1. Chromatograms, GC-MS, FTIR and NMR data for the amides **S-Aa** to **S-Aj**

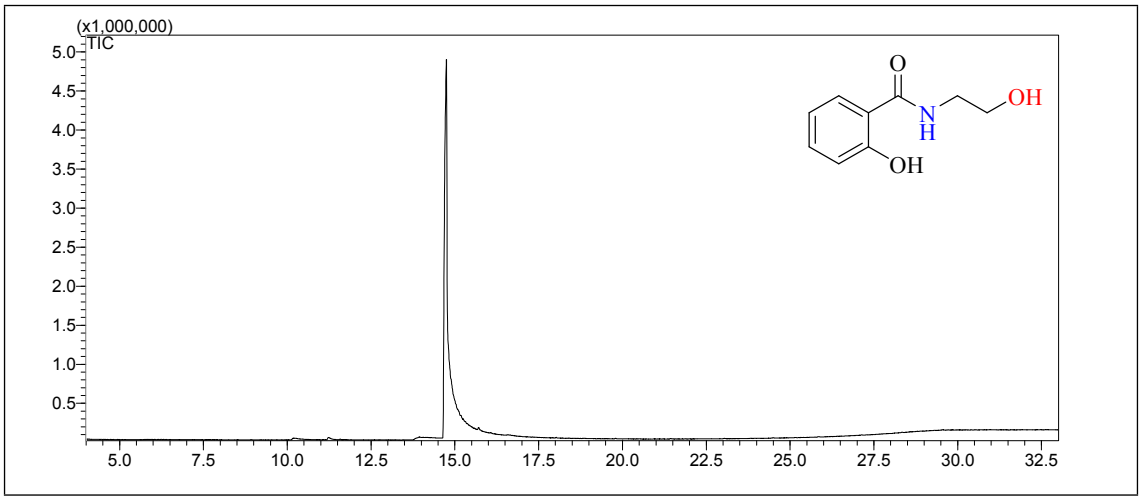

Figure S1. Chromatogram obtained by GC-MS (EI, 70 eV) of 2-hydroxy-*N*-(2-hydroxyethyl)benzamide (**S-Aa**).

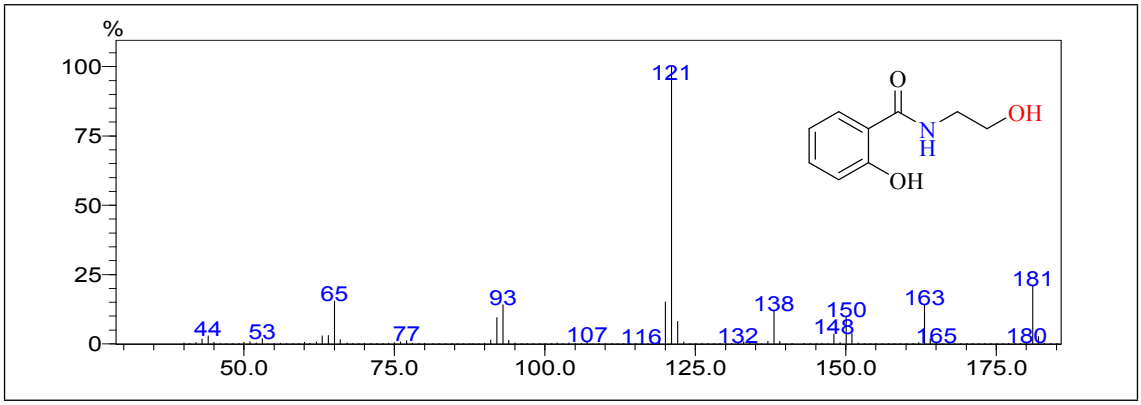

Figure S2. Mass spectrum (EI, 70 eV) of 2-hydroxy-*N*-(2-hydroxyethyl)benzamide (**S-Aa**).

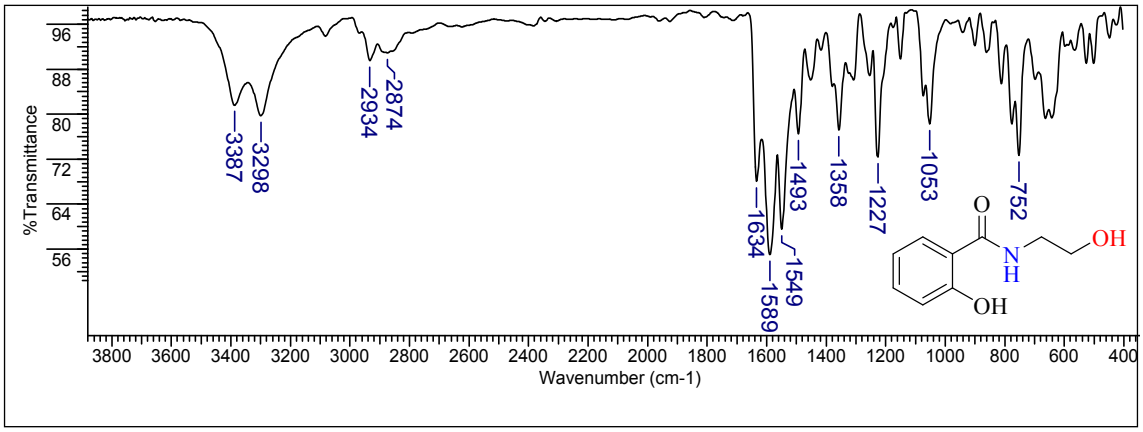

Figure S3. FTIR spectrum (silicon plate) of 2-hydroxy-*N*-(2-hydroxyethyl)benzamide (**S-Aa**).

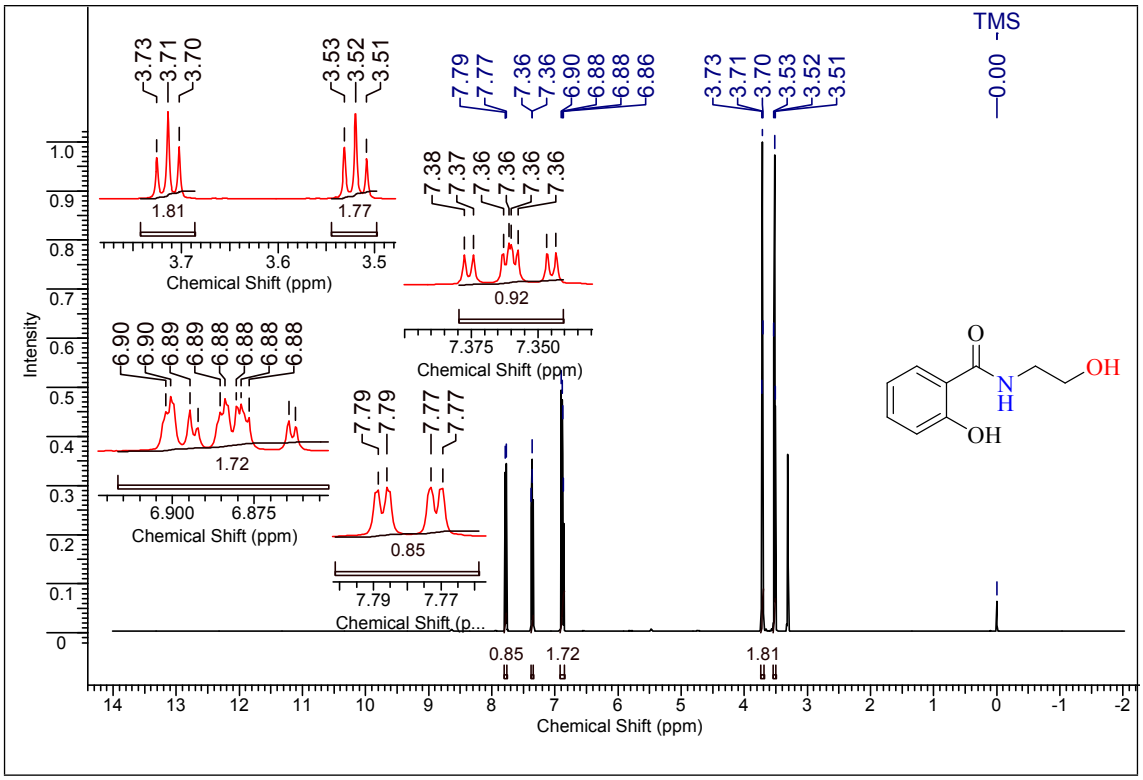

Figure S4. ^{1}H NMR spectrum (400 MHz, CD_3OD) of 2-hydroxy-*N*-(2-hydroxyethyl)benzamide (**S-Aa**).

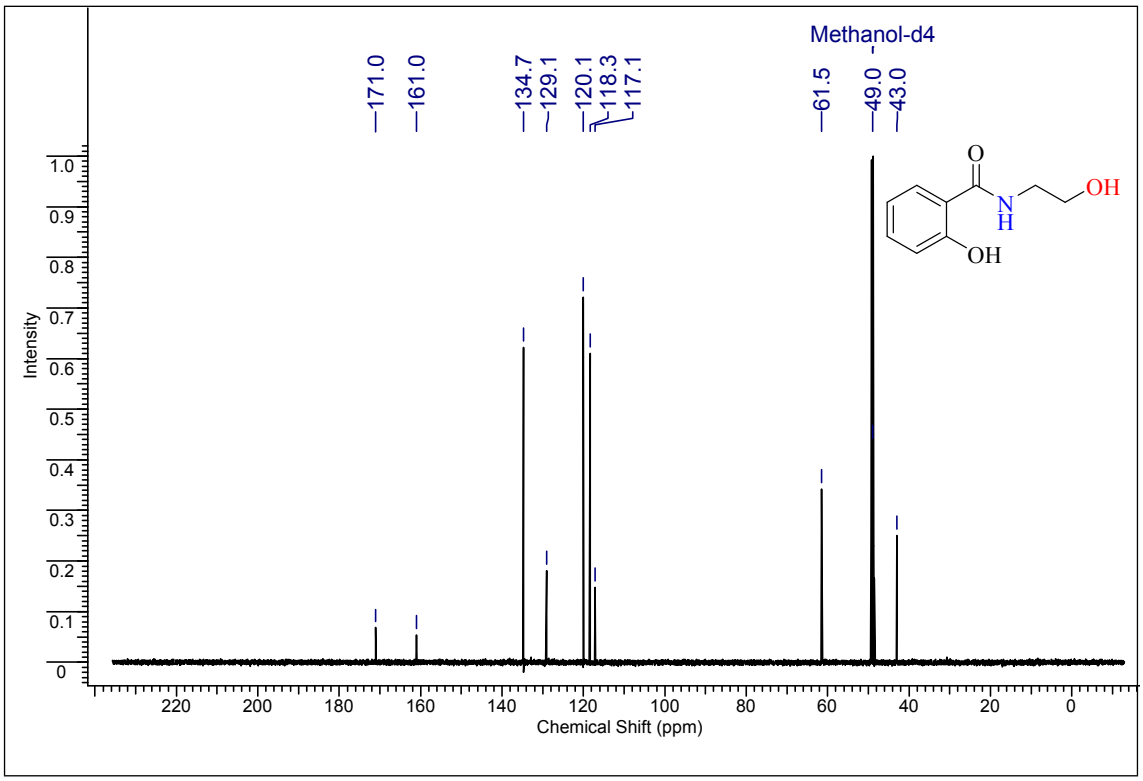

Figure S5. ^{13}C NMR spectrum (126 MHz, CD_3OD) of 2-hydroxy-*N*-(2-hydroxyethyl)benzamide (**S-Aa**).

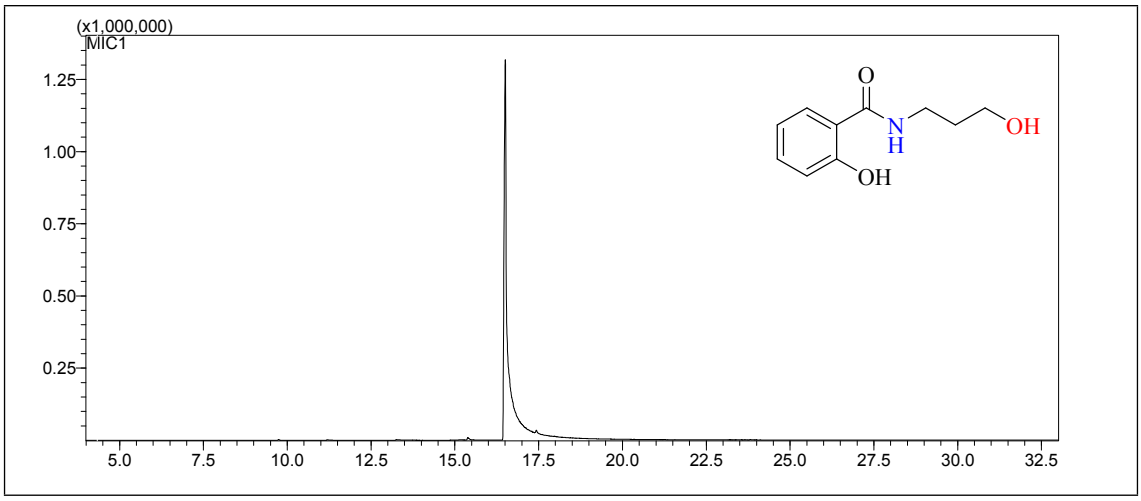

Figure S6. Chromatogram obtained by GC-MS (EI, 70 eV) of 2-hydroxy-*N*-(3-hydroxypropyl)benzamide (**S-Ab**).

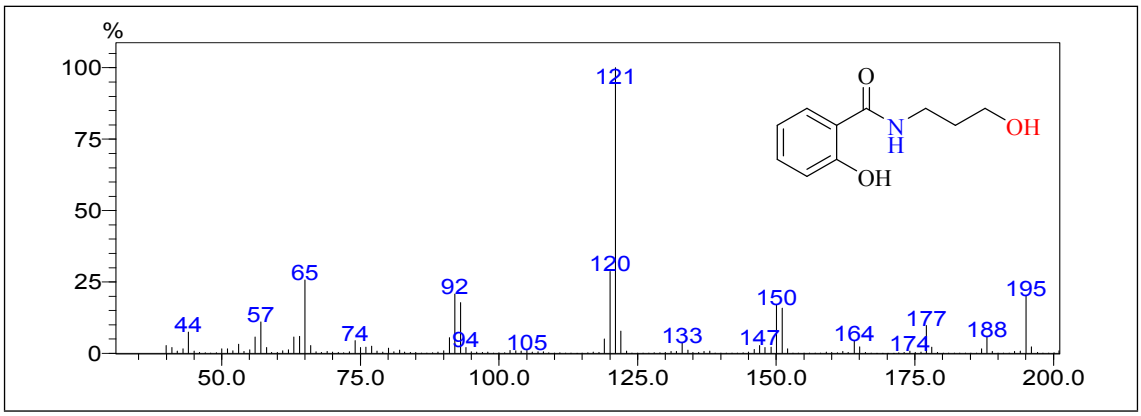

Figure S7. Mass spectrum (EI, 70 eV) of 2-hydroxy-*N*-(3-hydroxypropyl)benzamide (**S-Ab**).

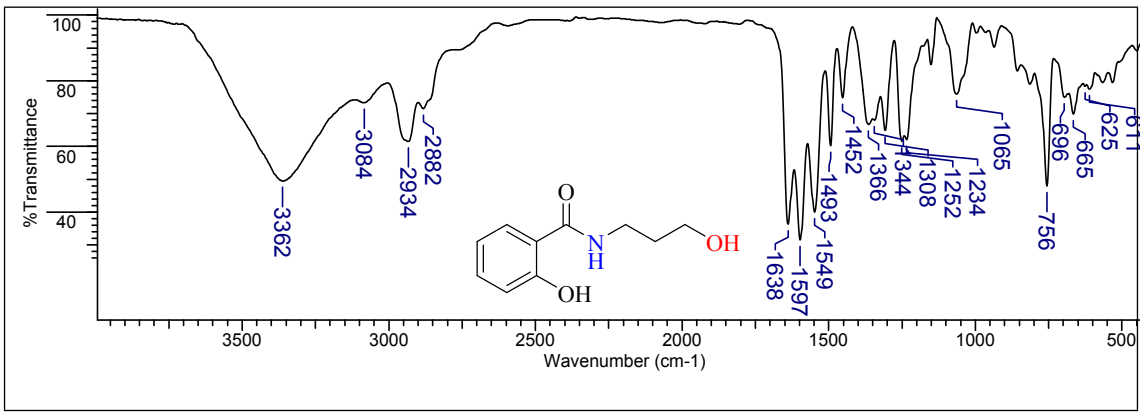

Figure S8. FTIR spectrum (silicon plate) of 2-hydroxy-*N*-(3-hydroxypropyl)benzamide (**S-Ab**).

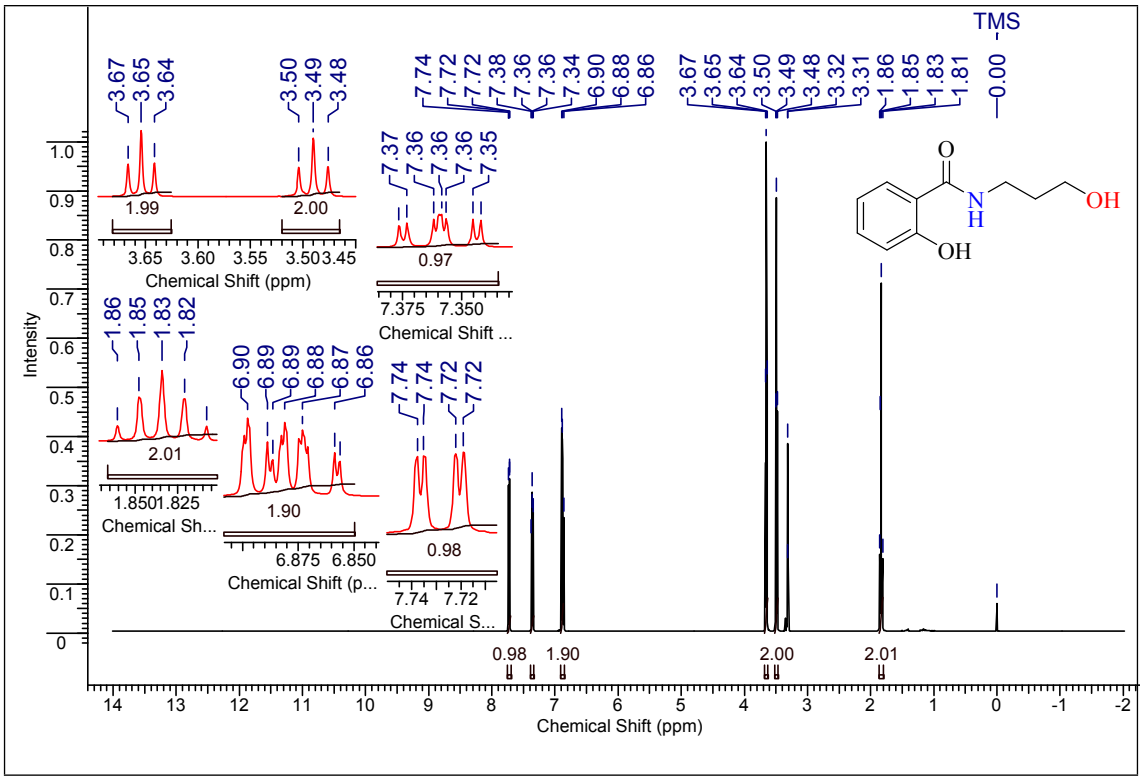

Figure S9. ^{1}H NMR spectrum (400 MHz, CD_3OD) of 2-hydroxy-*N*-(3-hydroxypropyl)benzamide (**S-Ab**).

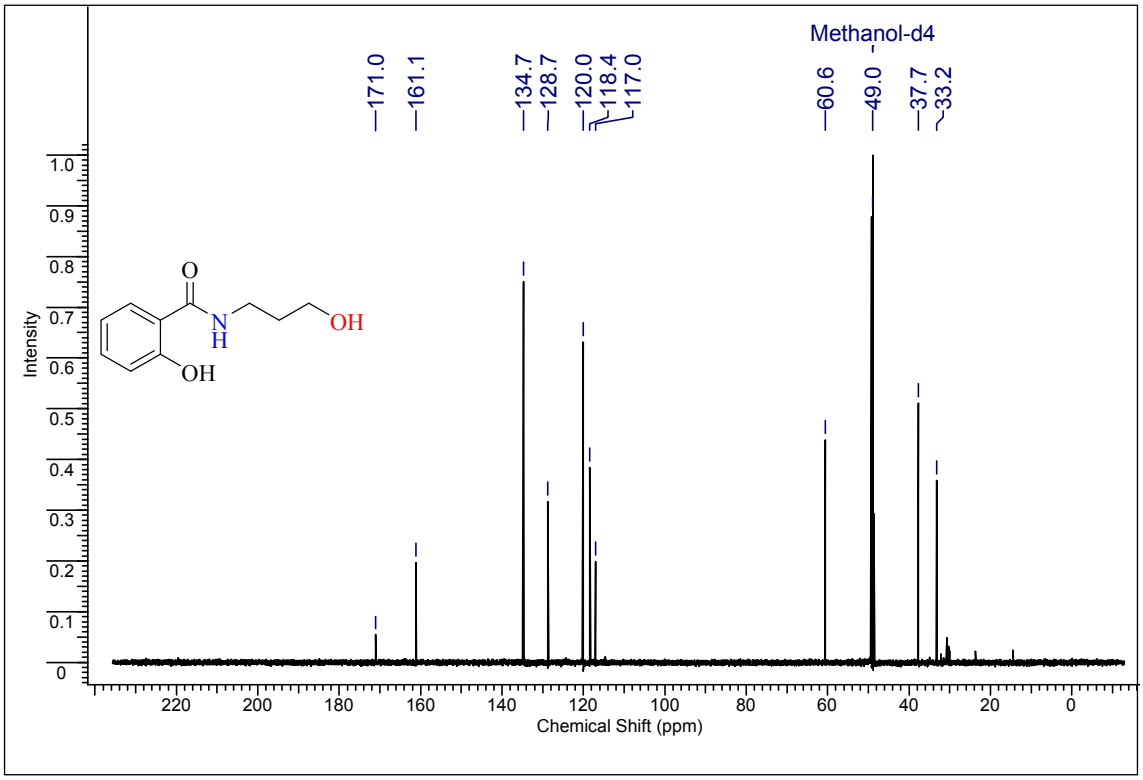

Figure S10. ^{13}C NMR spectrum (400 MHz, CD_3OD) of 2-hydroxy-*N*-(3-hydroxypropyl)benzamide (**S-Ab**).

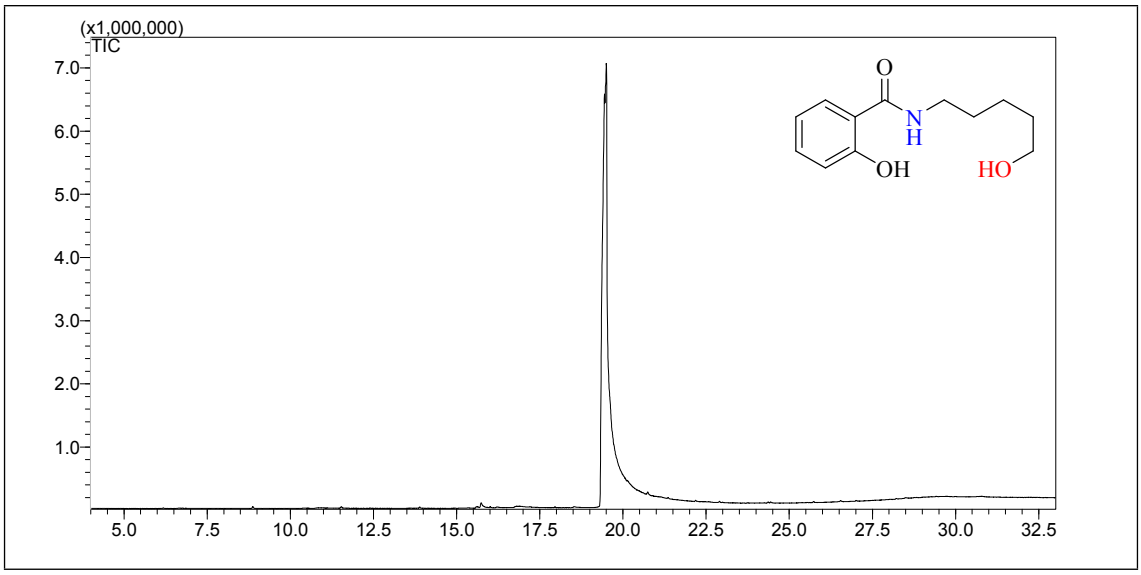

Figure S11. Chromatogram obtained by GC-MS (EI, 70 eV) of 2-hydroxy-*N*-(5-hydroxypentyl)benzamide (**S-Ac**).

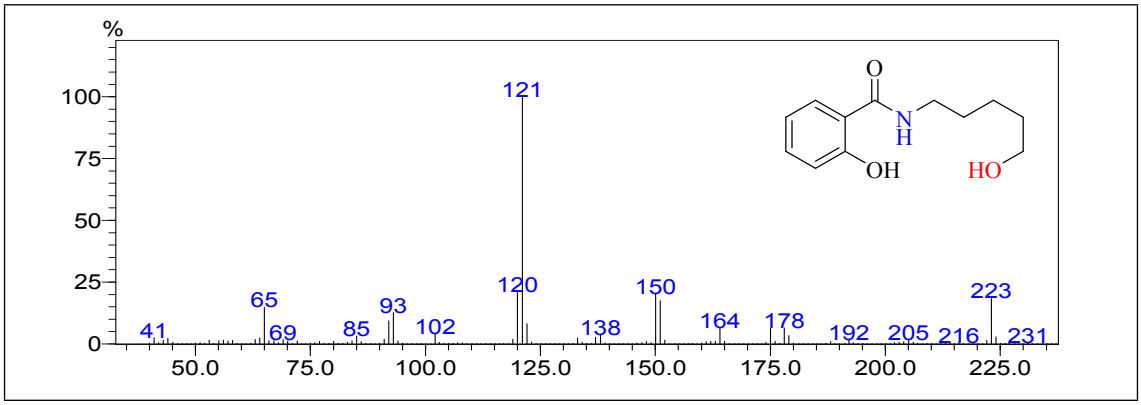

Figure S12. Mass spectrum (EI, 70 eV) of 2-hydroxy-*N*-(5-hydroxypentyl)benzamide (**S-Ac**).

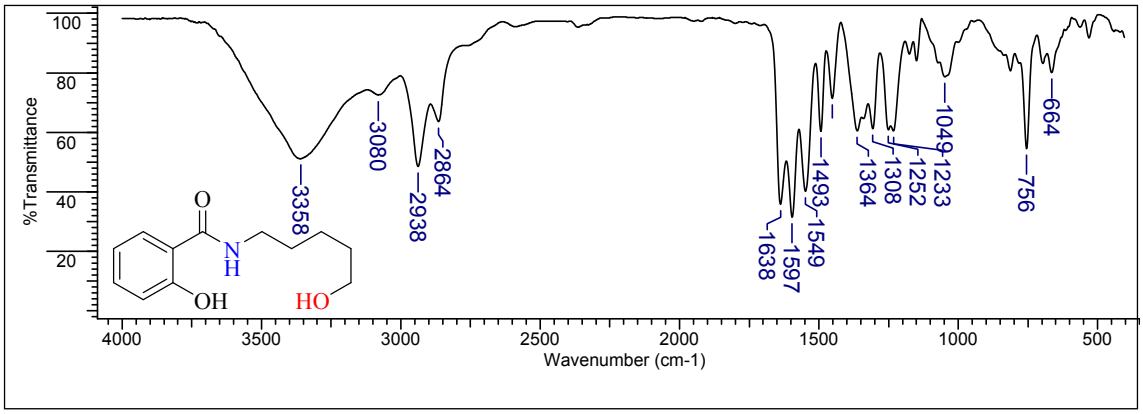

Figure S13. FTIR spectrum (silicon plate) of 2-hydroxy-*N*-(5-hydroxypentyl)benzamide (**S-Ac**).

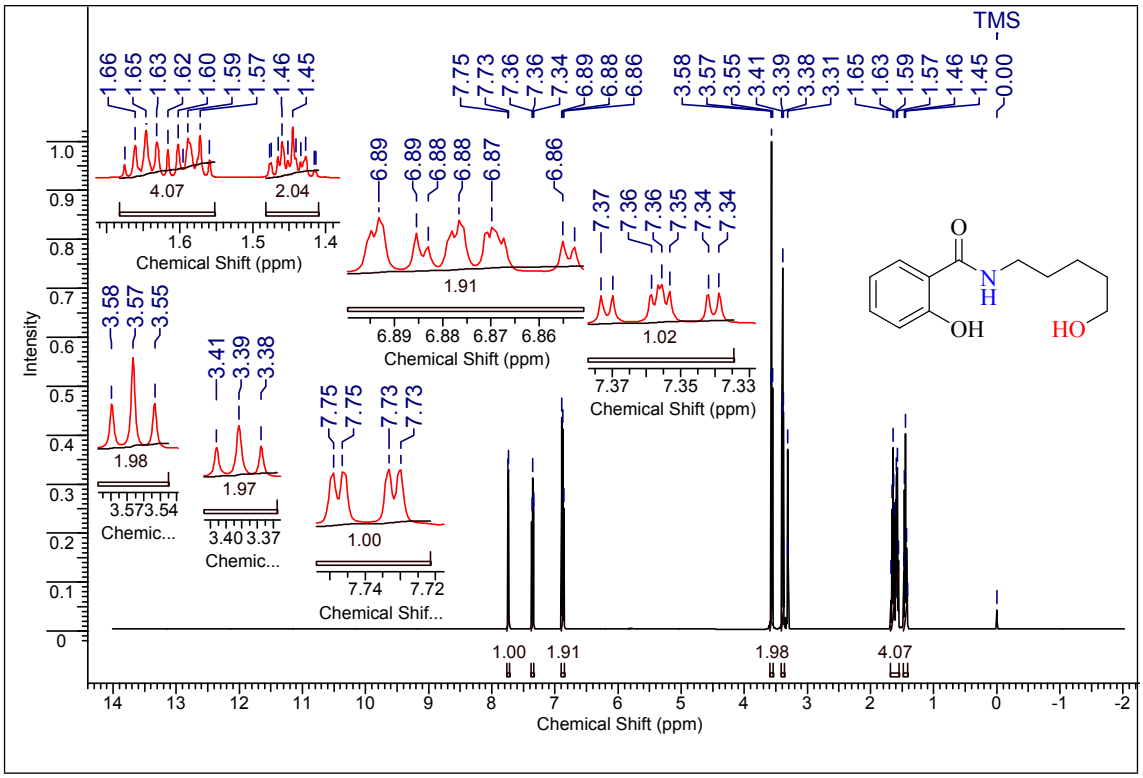

Figure S14. ^{1}H NMR spectrum (400 MHz, CD_3OD) of 2-hydroxy-*N*-(5-hydroxypentyl)benzamide (**S-Ac**).

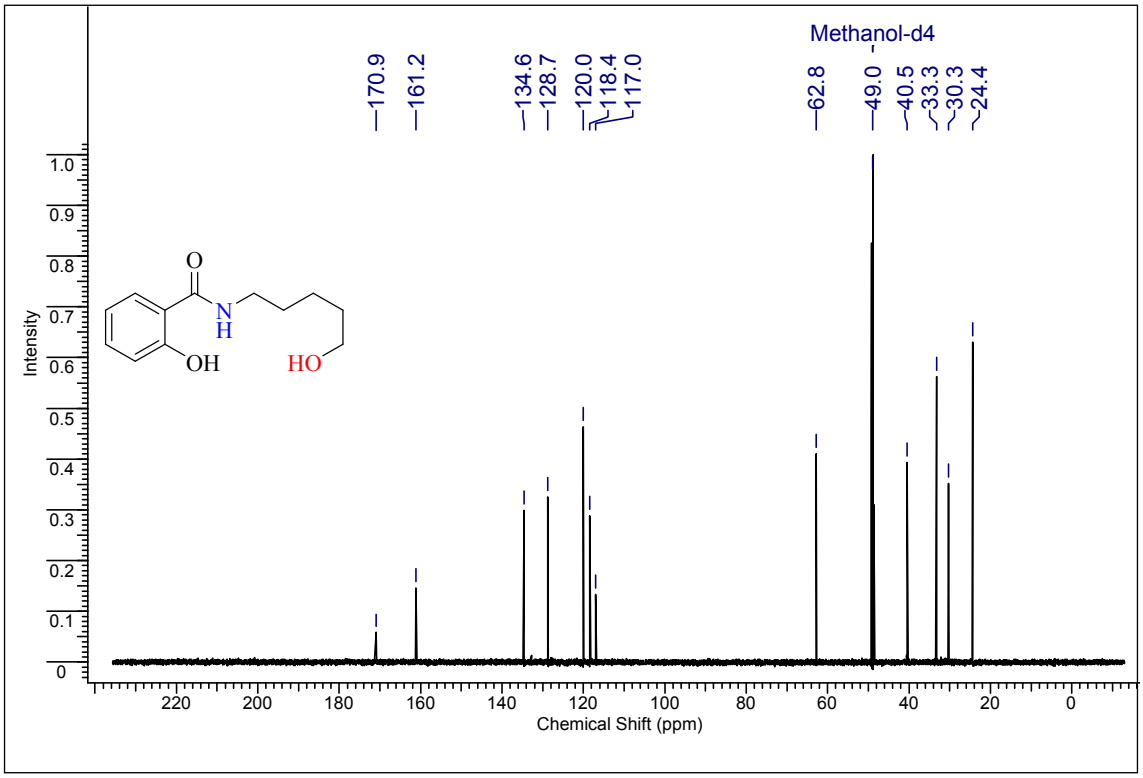

Figure S15. ^{13}C NMR spectrum (127 MHz, CD_3OD) of 2-hydroxy-*N*-(5-hydroxypentyl)benzamide (**S-Ac**).

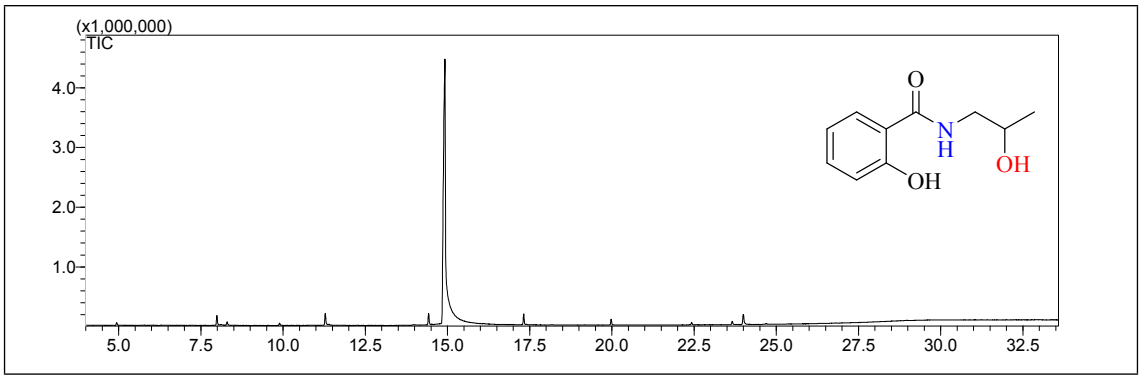

Figure S16. Chromatogram obtained by GC-MS (EI, 70 eV) of 2-hydroxy-*N*-(2-hydroxypropyl)benzamide (**S-Ad**).

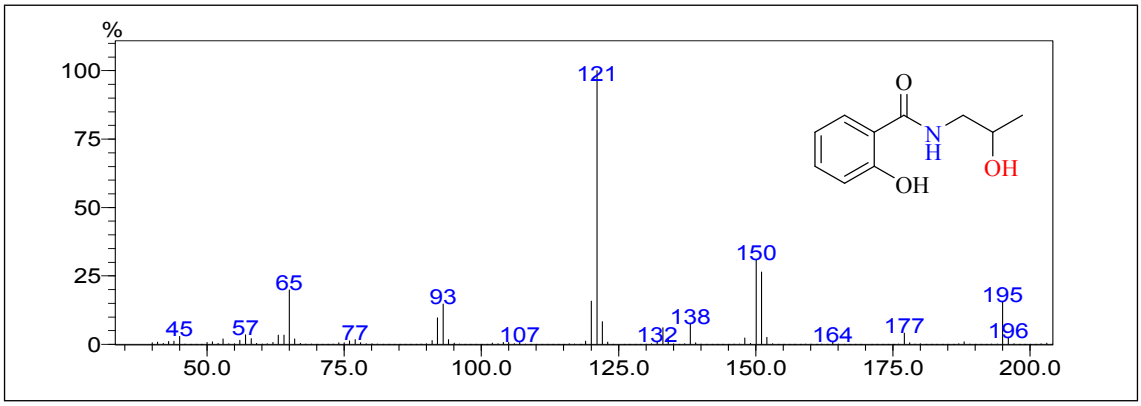

Figure S17. Mass spectrum (EI, 70 eV) of 2-hydroxy-*N*-(2-hydroxypropyl)benzamide (**S-Ad**).

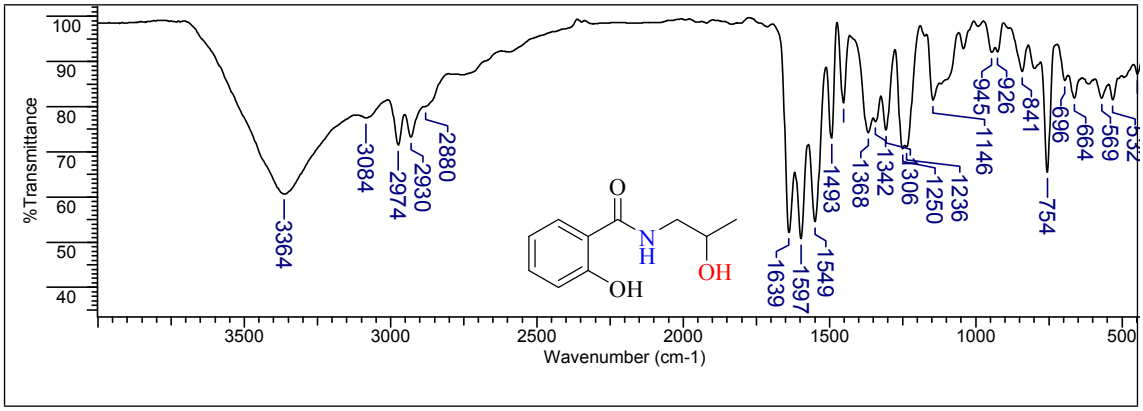

Figure S18. FTIR spectrum (Silicon plate) of 2-hydroxy-*N*-(2-hydroxypropyl)benzamide (**S-Ad**).

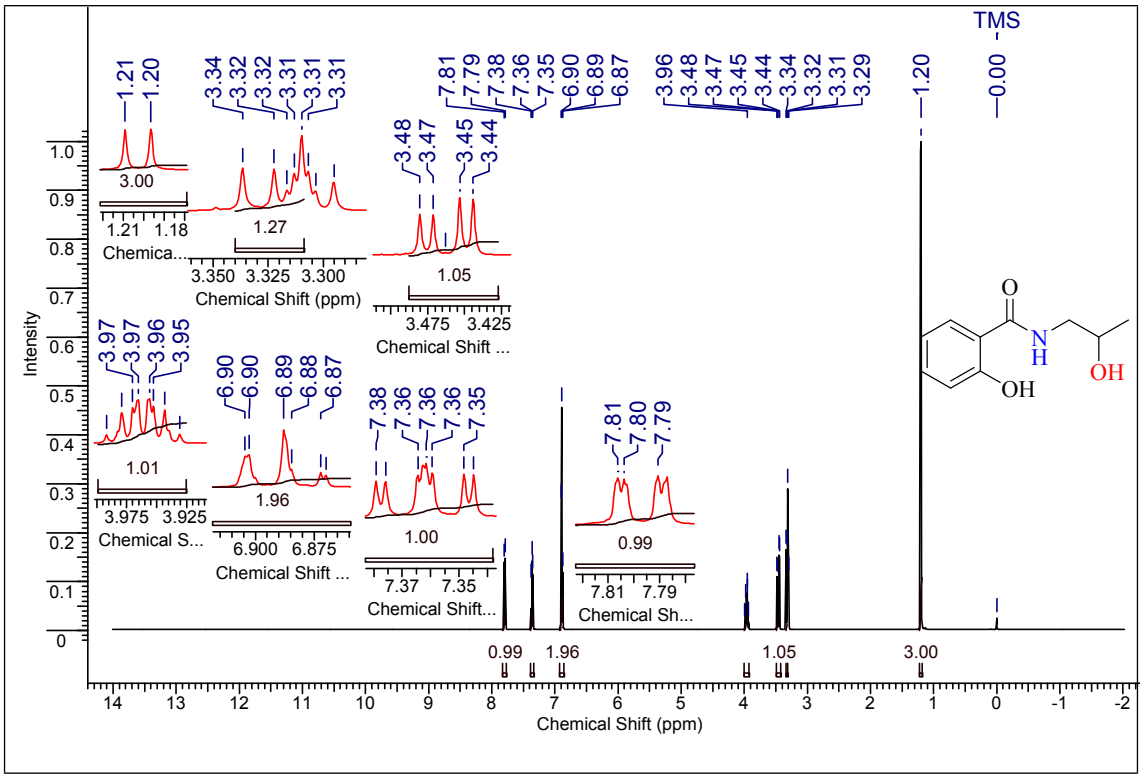

Figure S19. ^{1}H NMR spectrum (400 MHz, CD_3OD) of 2-hydroxy-*N*-(2-hydroxypropyl)benzamide (**S-Ad**).

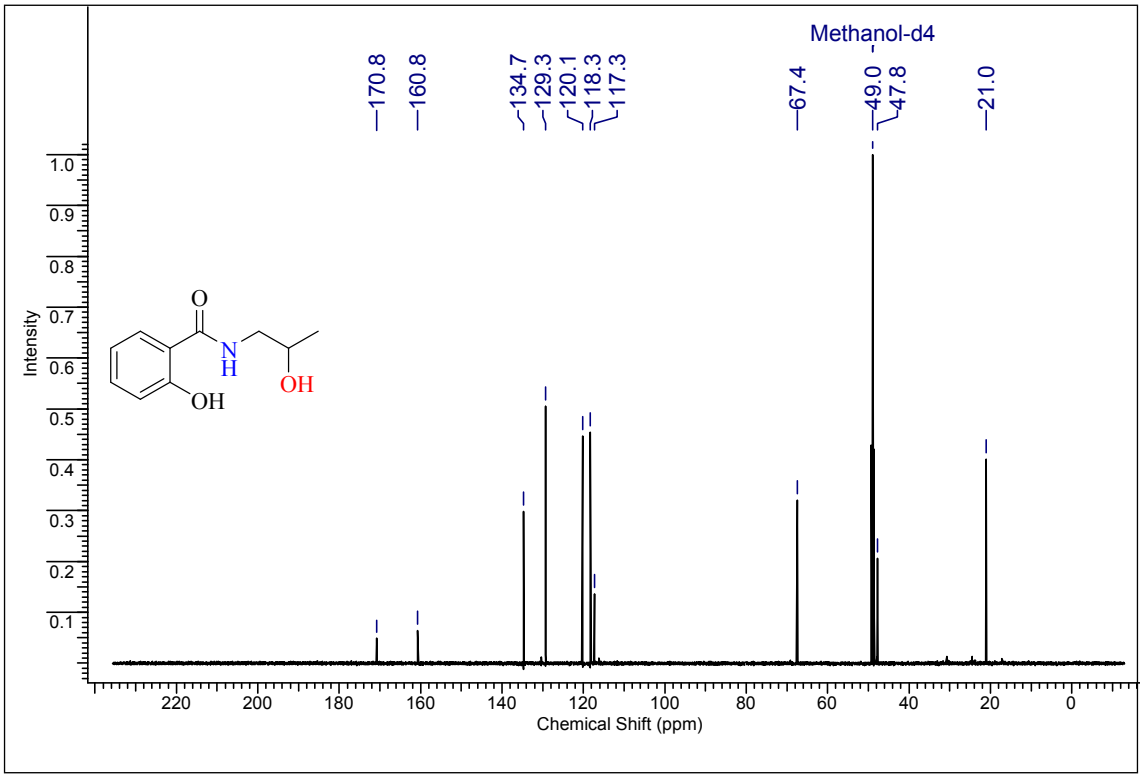

Figure S20. ^{13}C NMR spectrum (127 MHz, CD_3OD) of 2-hydroxy-*N*-(2-hydroxypropyl)benzamide (**S-Ad**).

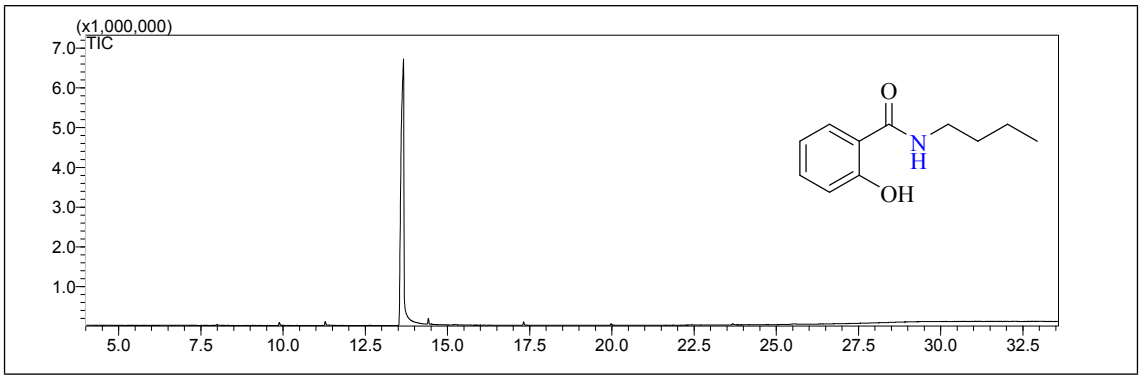

Figure S21. Chromatogram obtained by GC-MS (EI, 70 eV) of *N*-butyl-2-hydroxybenzamide (**S-Ae**).

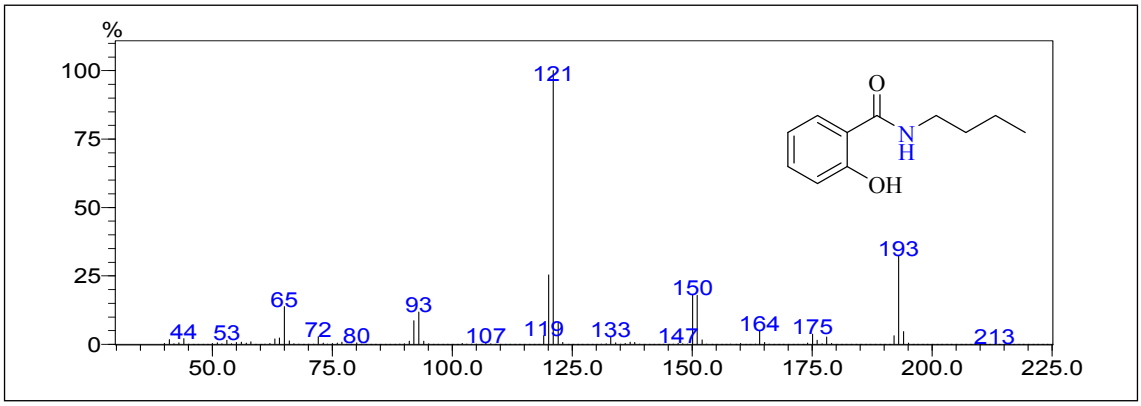

Figure S22. Mass spectrum (EI, 70 eV) of *N*-butyl-2-hydroxybenzamide (**S-Ae**).

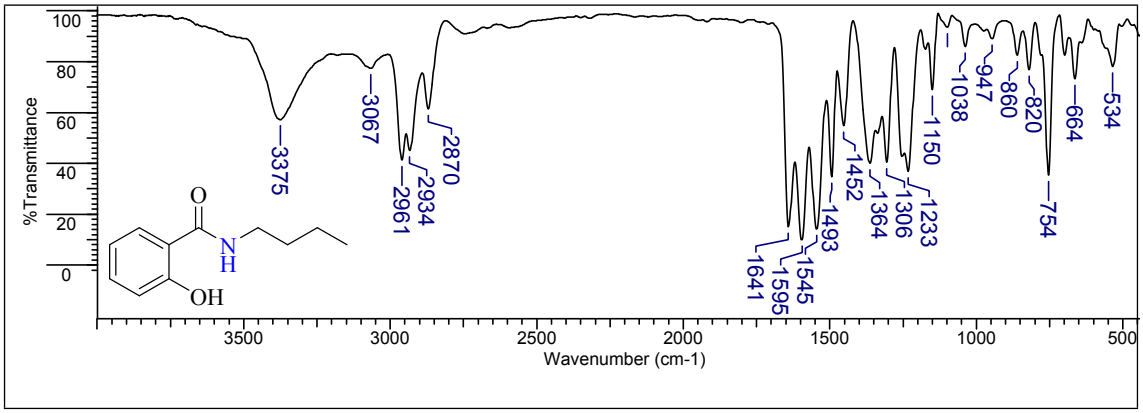

Figure S23. FTIR spectrum (Silicon plate) of *N*-butyl-2-hydroxybenzamide (**S-Ae**).

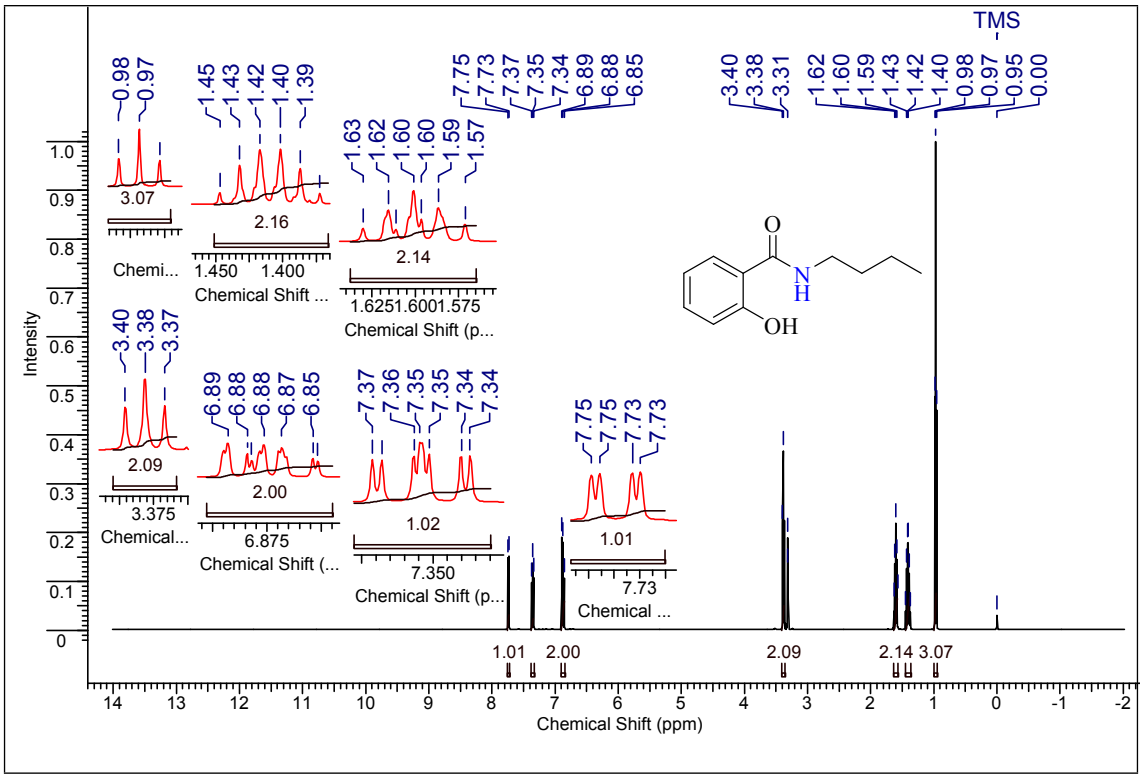

Figure S24. ^{1}H NMR spectrum (400 MHz, CD_3OD) of *N*-butyl-2-hydroxybenzamide (**S-Ae**).

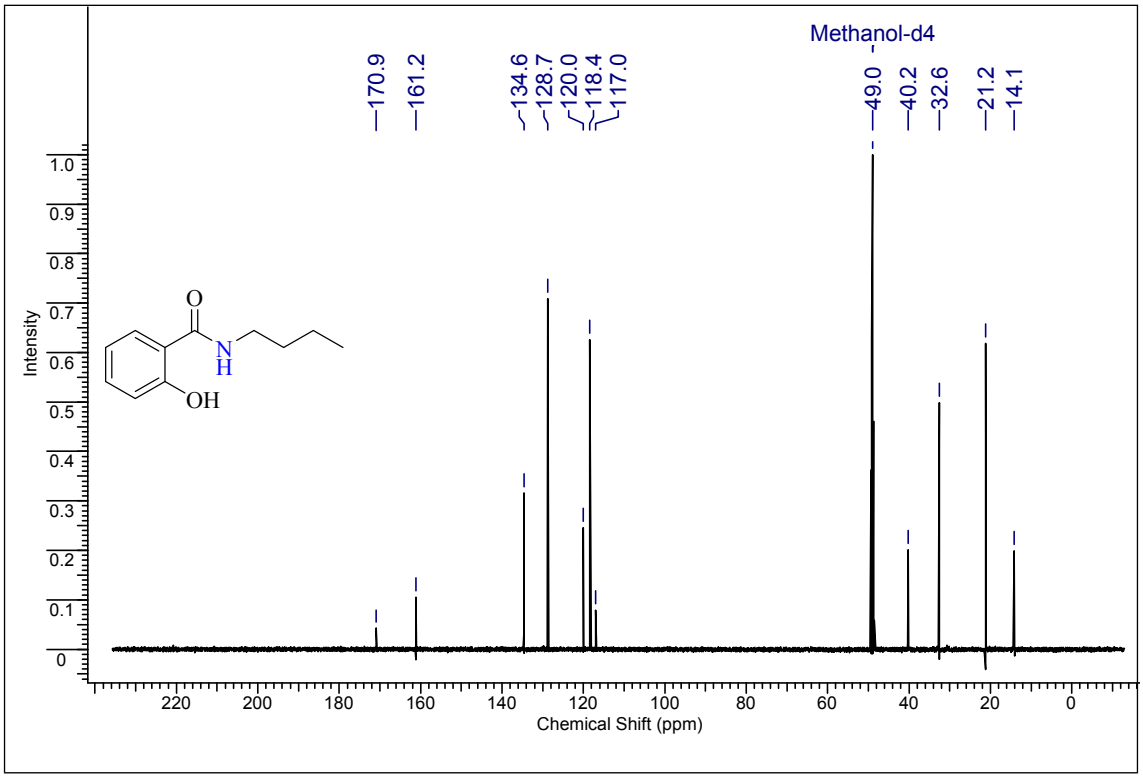

Figure S25. ^{13}C NMR spectrum (127 MHz, CD_3OD) of *N*-butyl-2-hydroxybenzamide (**S-Ae**).

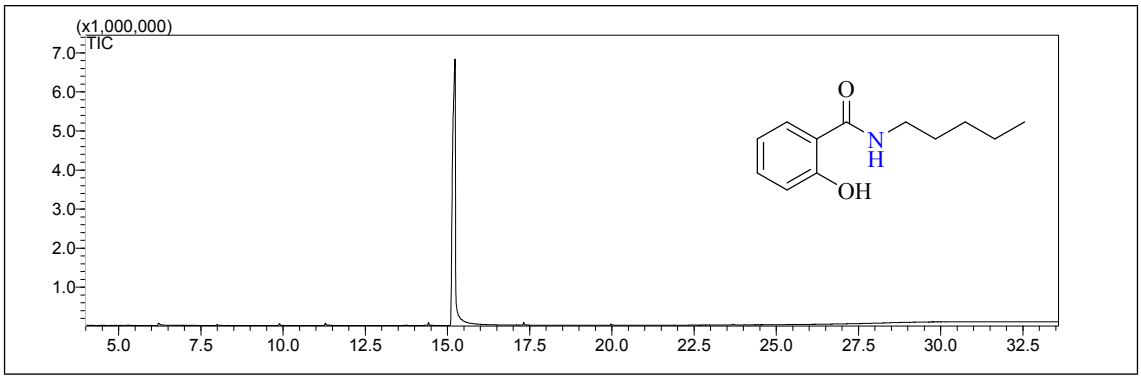

Figure S26. Chromatogram obtained by GC-MS (EI, 70 eV) of 2-hydroxy-*N*-pentylbenzamide (**S-Af**).

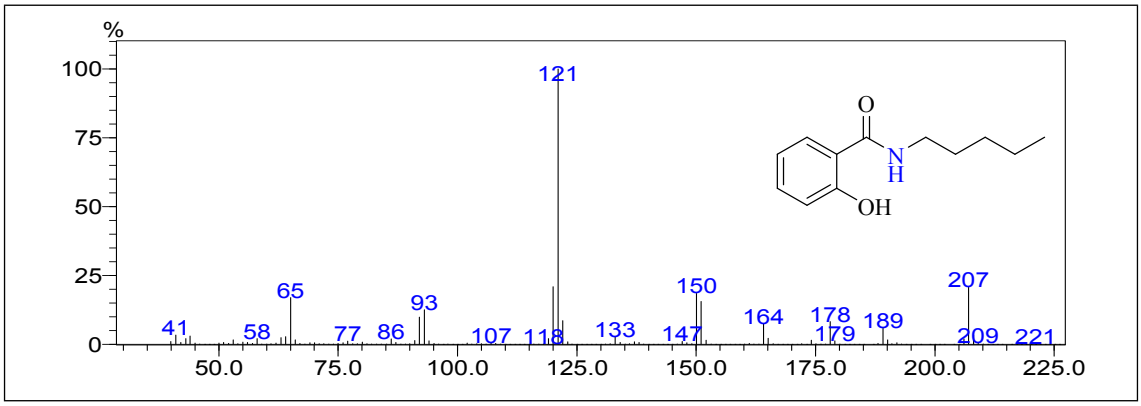

Figure S27. Mass spectrum (EI, 70 eV) of 2-hydroxy-*N*-pentylbenzamide (**S-Af**).

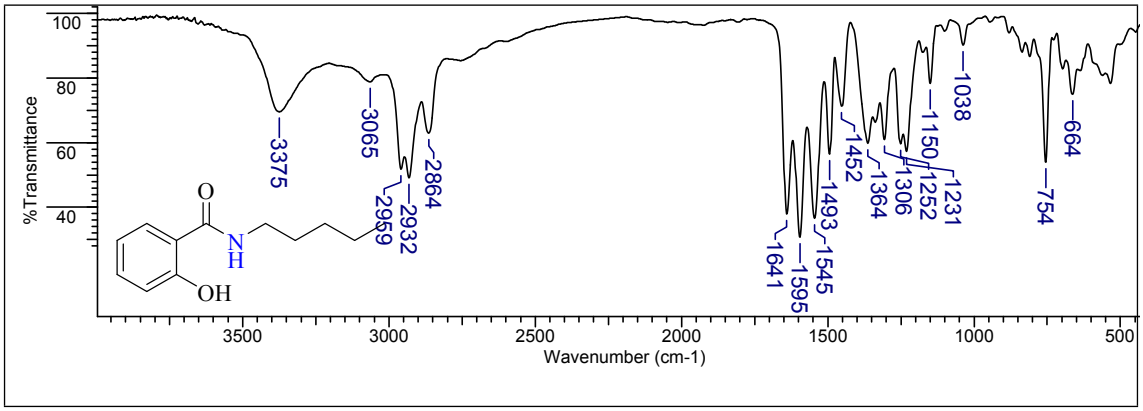

Figure S28. FTIR spectrum (Silicon plate) of 2-hydroxy-*N*-pentylbenzamide (**S-Af**).

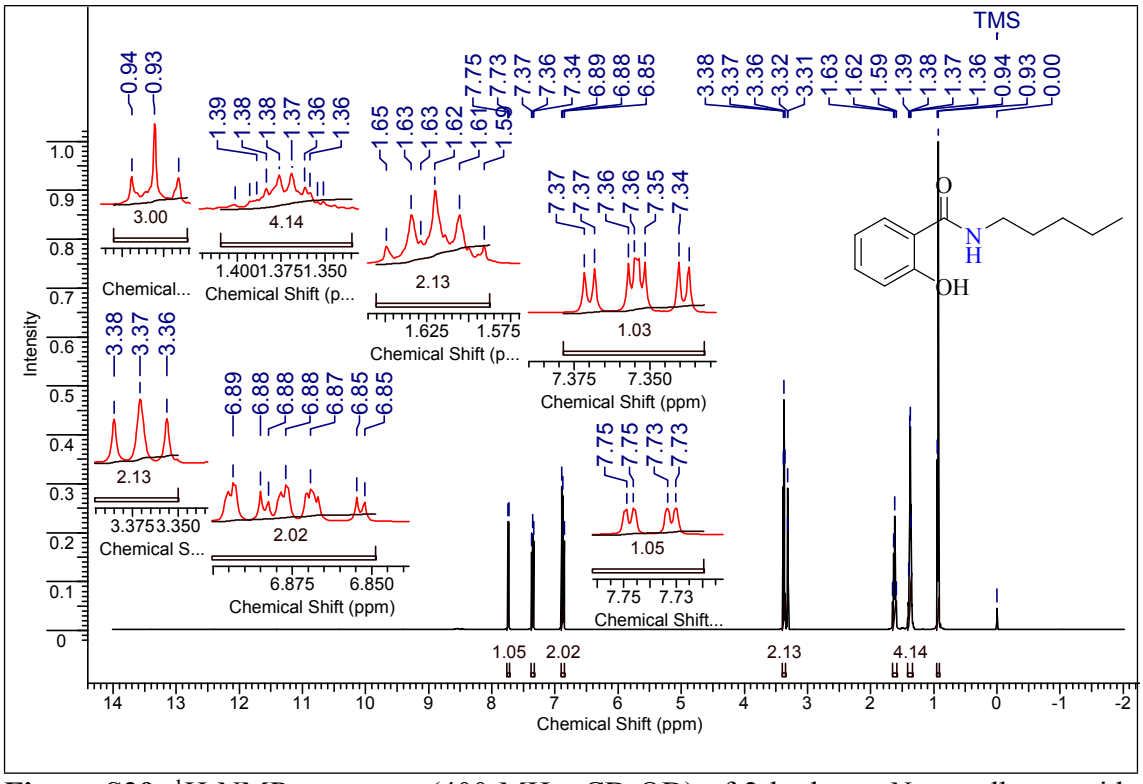

Figure S29. ^{1}H NMR spectrum (400 MHz, CD_3OD) of 2-hydroxy-*N*-pentylbenzamide (**S-Af**).

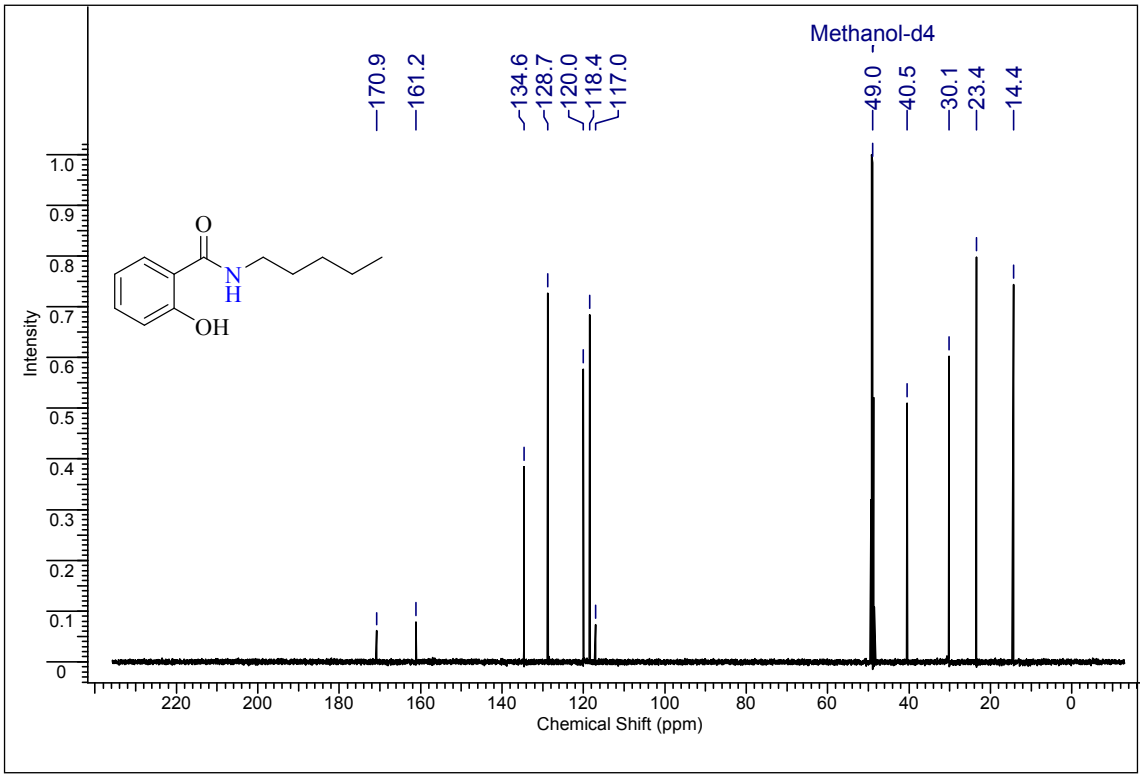

Figure S30. ^{13}C NMR spectrum (127 MHz, CD_3OD) of 2-hydroxy-*N*-pentylbenzamide (**S-Af**).

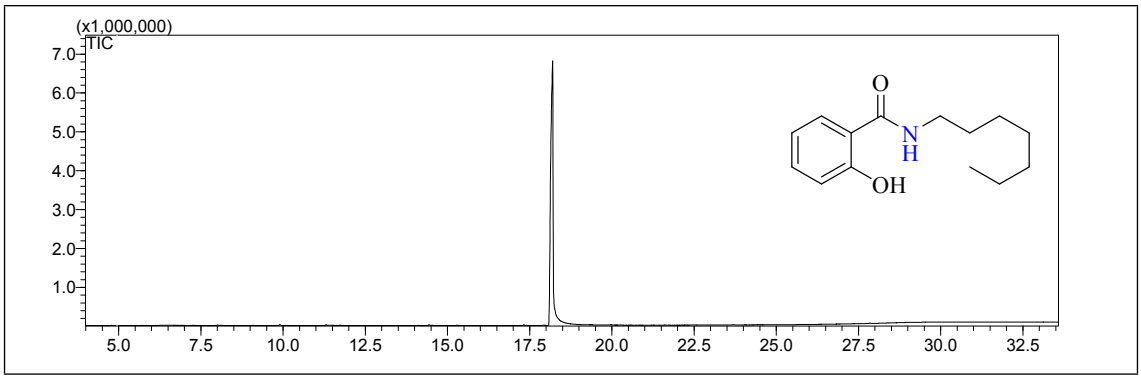

Figure S31. Chromatogram obtained by GC-MS (EI, 70 eV) of *N*-heptyl-2-hydroxybenzamide (**S-Ag**).

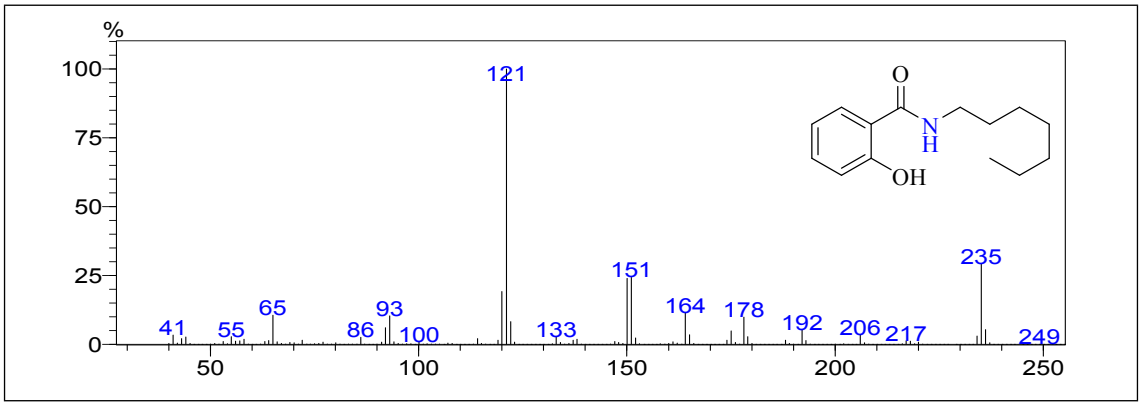

Figure S32. Mass spectrum (EI, 70 eV) of *N*-heptyl-2-hydroxybenzamide (**S-Ag**).

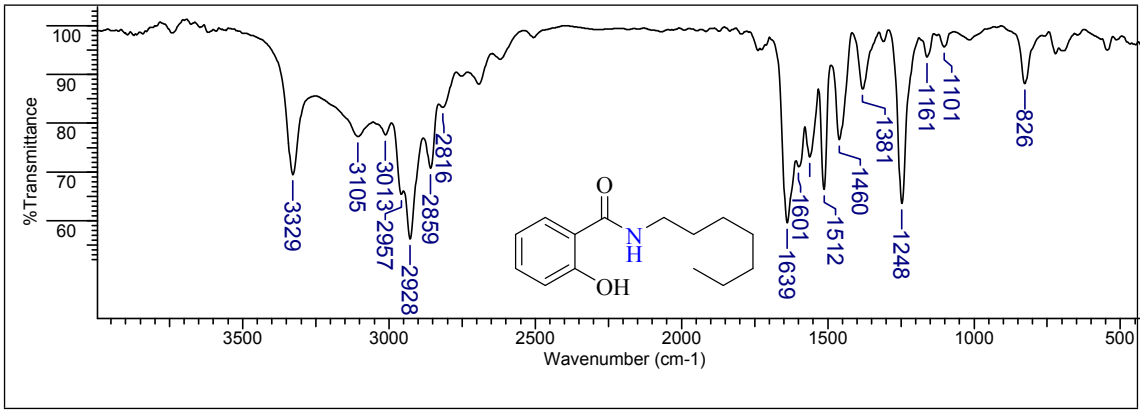

Figure S33. FTIR spectrum (Silicon plate) of *N*-heptyl-2-hydroxybenzamide (**S-Ag**).

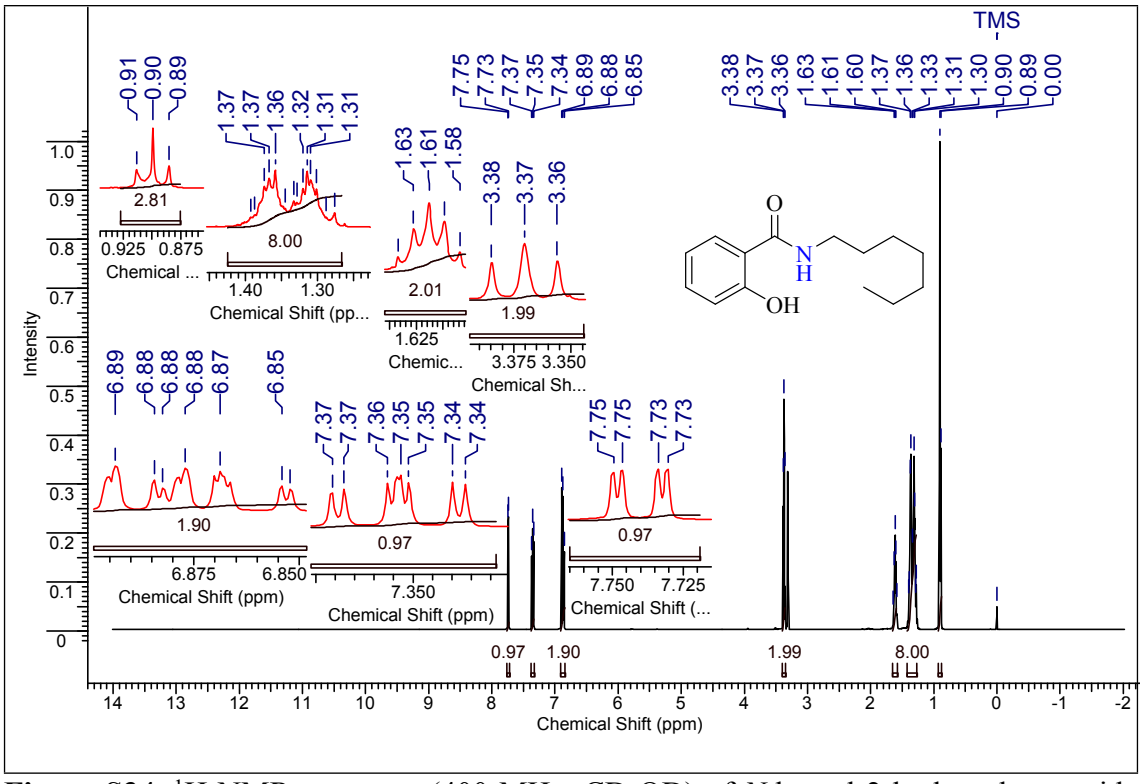

Figure S34. ^{1}H NMR spectrum (400 MHz, CD_3OD) of *N*-heptyl-2-hydroxybenzamide (**S-Ag**).

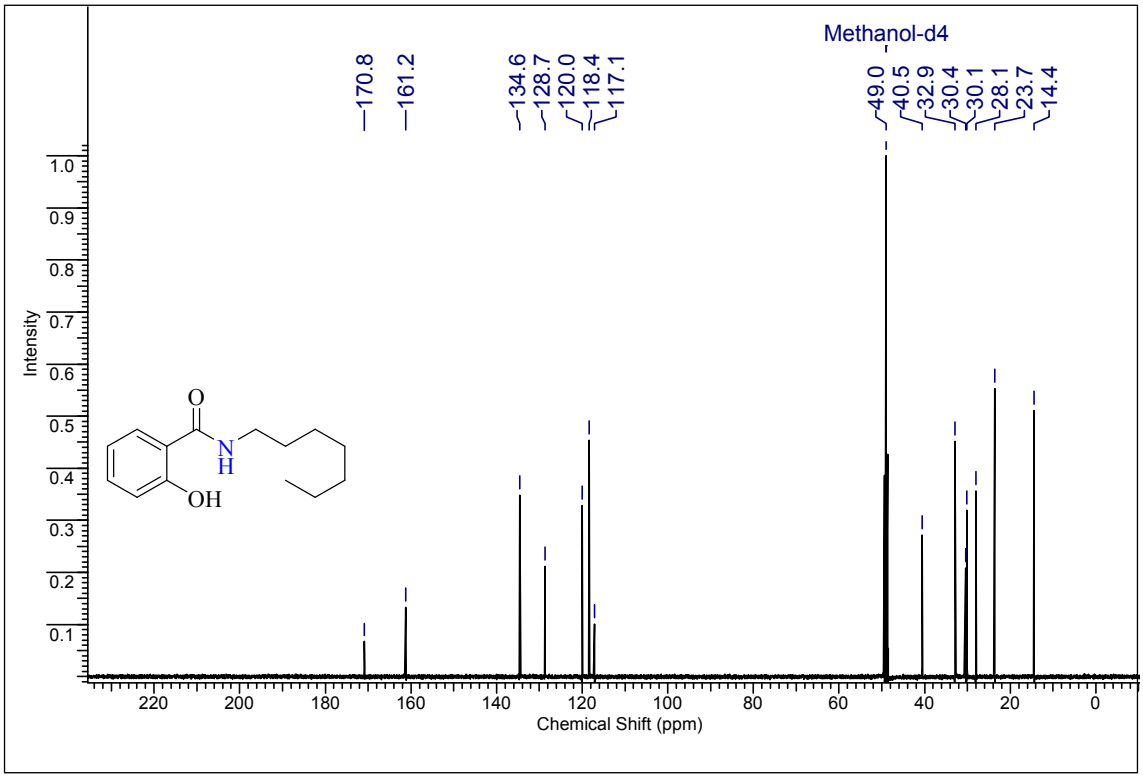

Figure S35. ^{13}C NMR spectrum (127 MHz, CD_3OD) of *N*-heptyl-2-hydroxybenzamide (**S-Ag**).

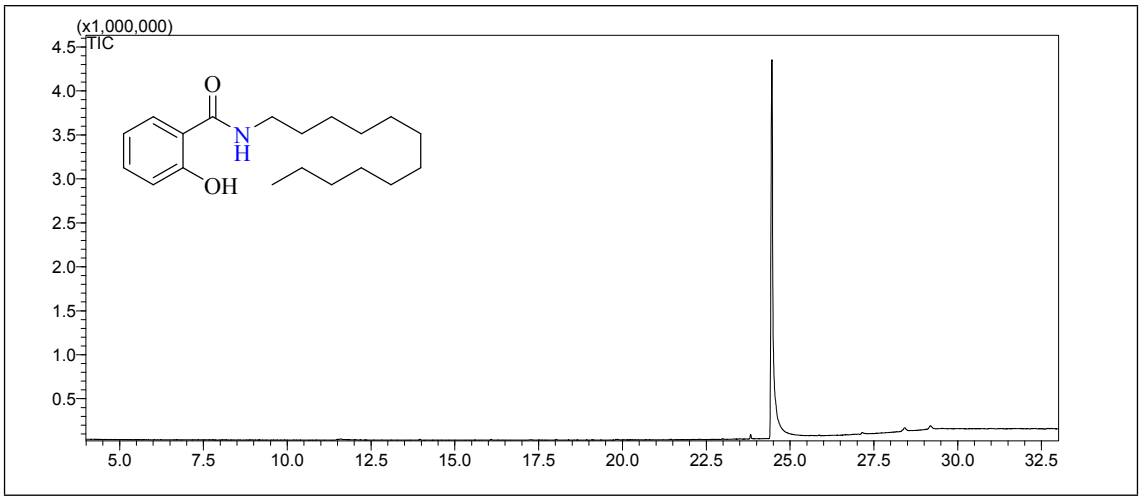

Figure S36. Chromatogram obtained by GC-MS (EI, 70 eV) of *N*-dodecyl-2-hydroxybenzamide (**S-Ah**).

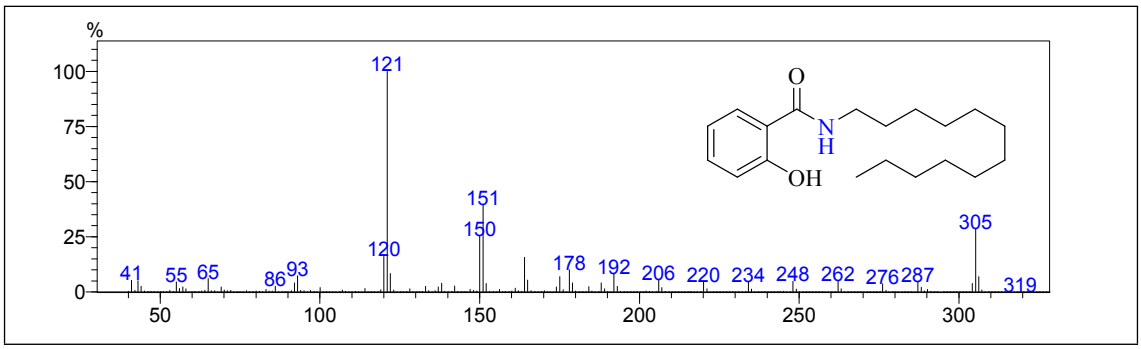

Figure S37. Mass spectrum (70 eV) of *N*-dodecyl-2-hydroxybenzamide (**S-Ah**).

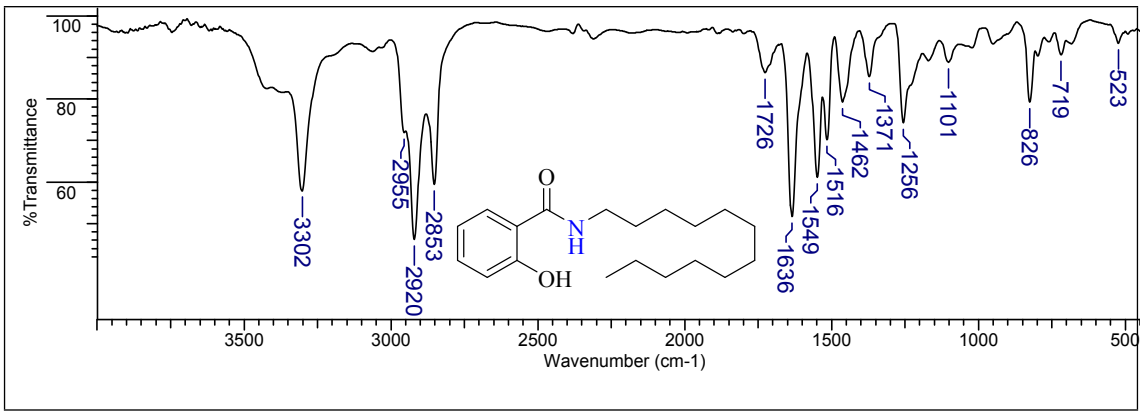

Figure S38. FTIR spectrum (Silicon plate) of *N*-dodecyl-2-hydroxybenzamide (**S-Ah**).

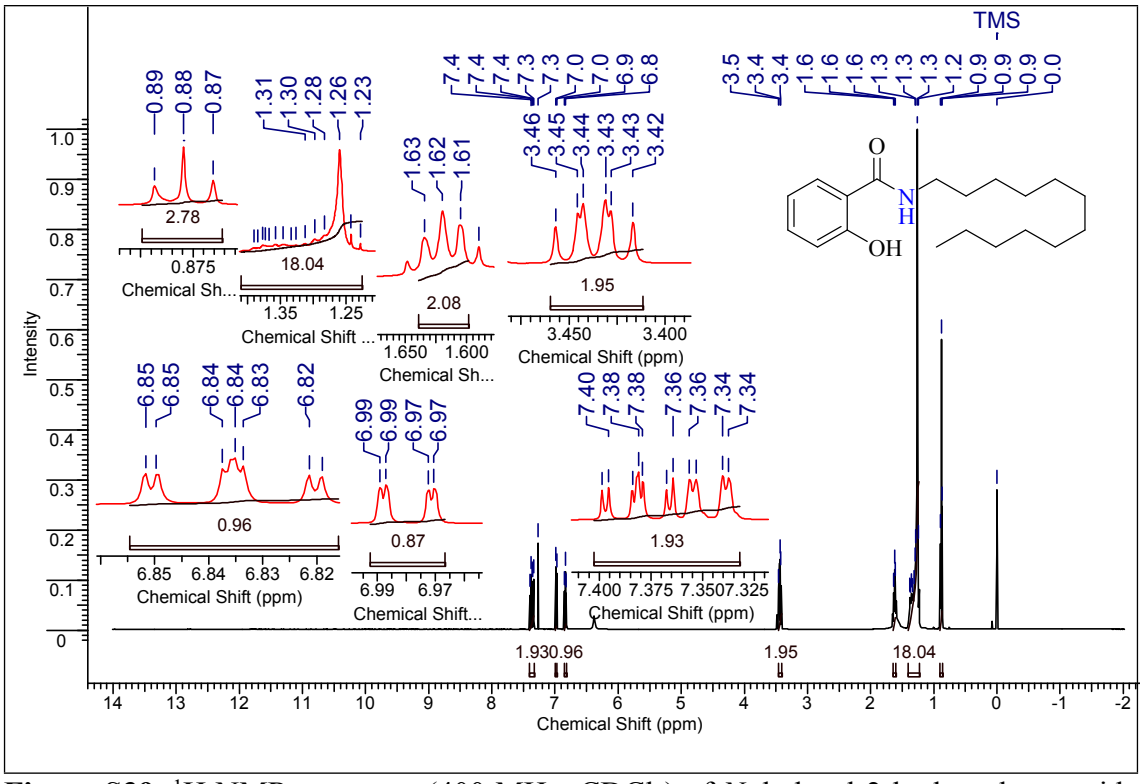

Figure S39. ^{1}H NMR spectrum (400 MHz, $CDCl_3$) of *N*-dodecyl-2-hydroxybenzamide (**S-Ah**).

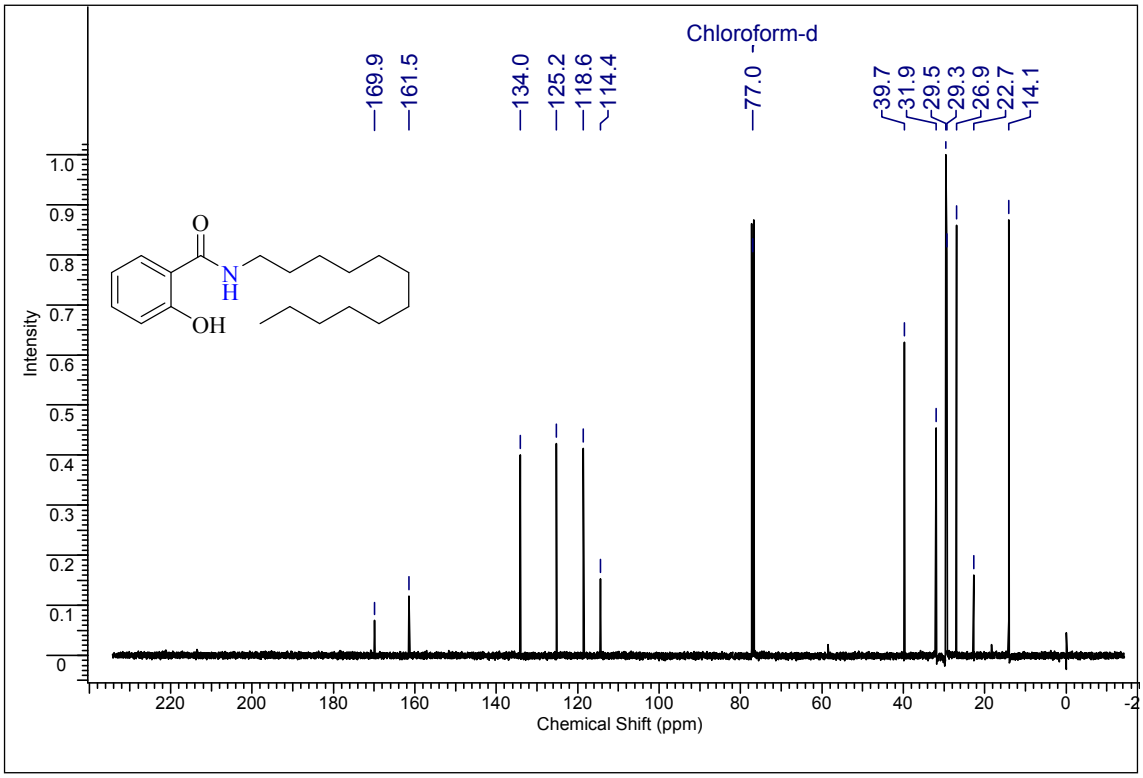

Figure S40. ^{13}C NMR spectrum (127 MHz, $CDCl_3$) of *N*-dodecyl-2-hydroxybenzamide (**S-Ah**).

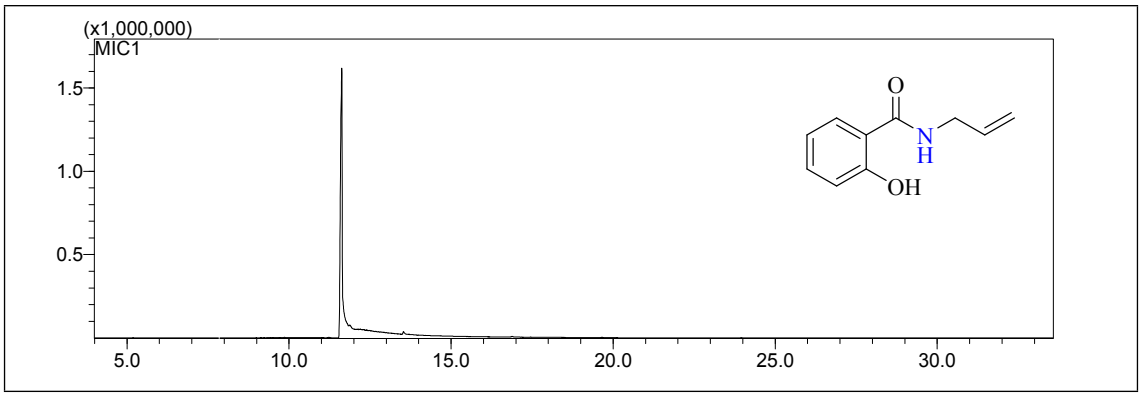

Figure S41. Chromatogram obtained by GC-MS (EI, 70 eV) of *N*-allyl-2-hydroxybenzamide (**S-Ai**).

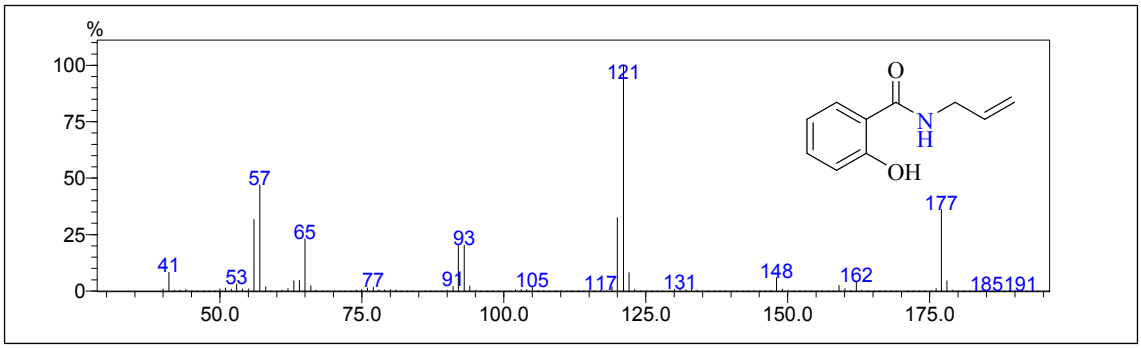

Figure S42. Mass spectrum (EI, 70 eV) of *N*-allyl-2-hydroxybenzamide (**S-Ai**).

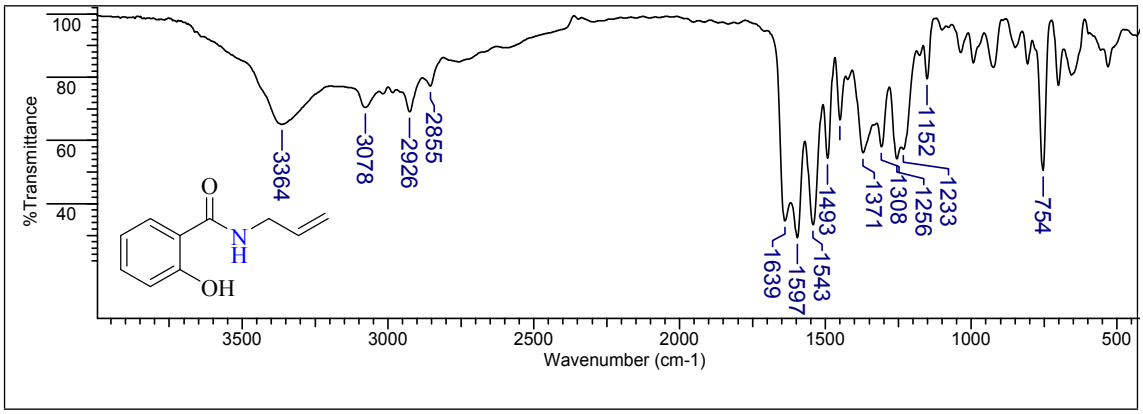

Figure S43. FTIR spectrum (Silicon plate) of *N*-allyl-2-hydroxybenzamide (**S-Ai**).

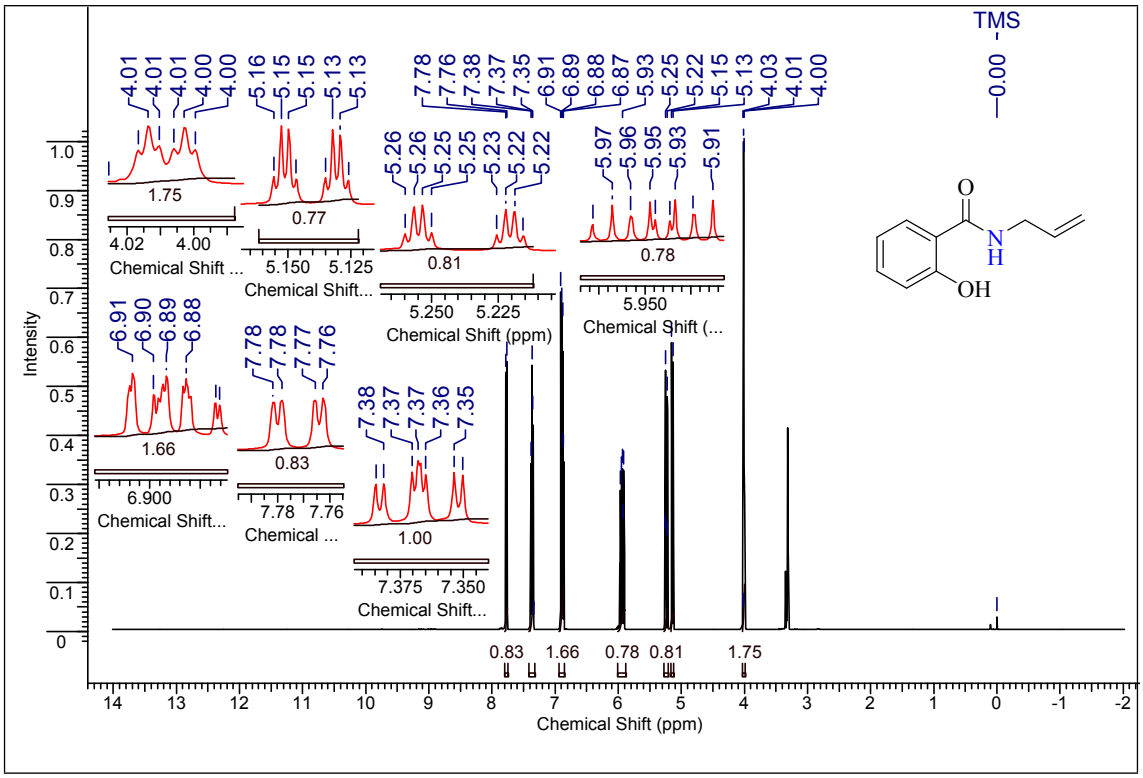

Figure S44. ^{1}H NMR spectrum (400 MHz, CD_3OD) of *N*-allyl-2-hydroxybenzamide (**S-Ai**).

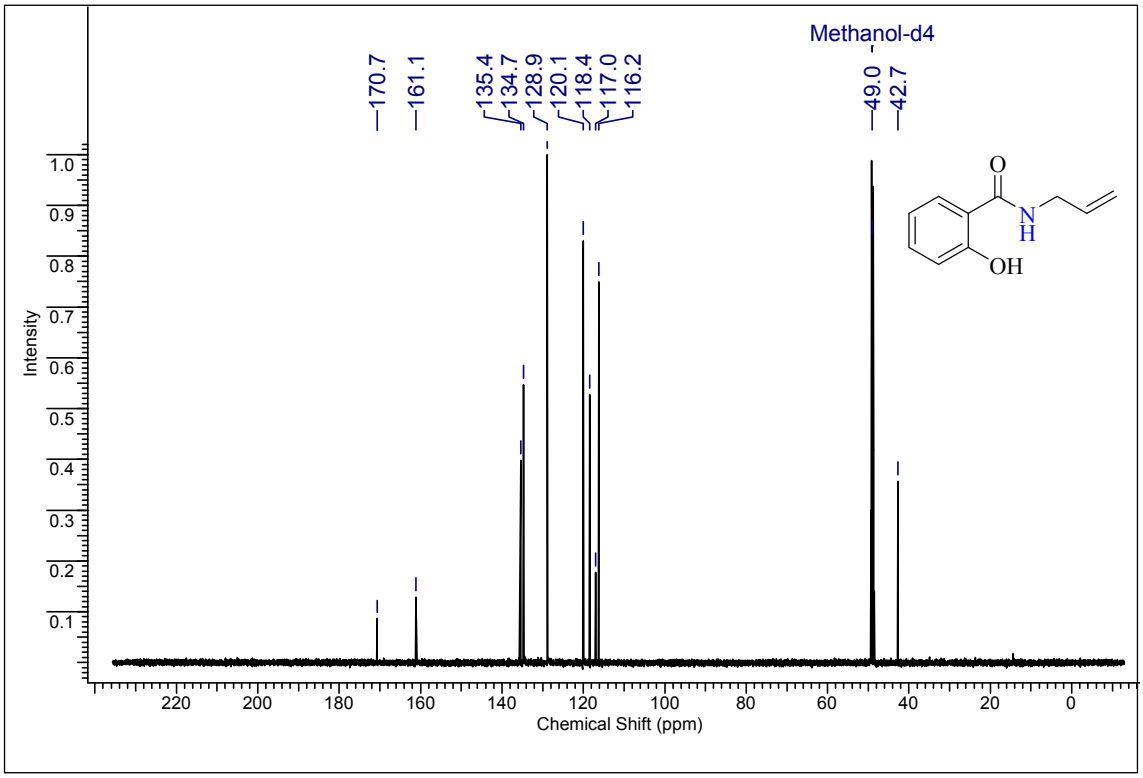

Figure S45. ^{13}C NMR spectrum (127 MHz, CD_3OD) of *N*-allyl-2-hydroxybenzamide (**S-Ai**).

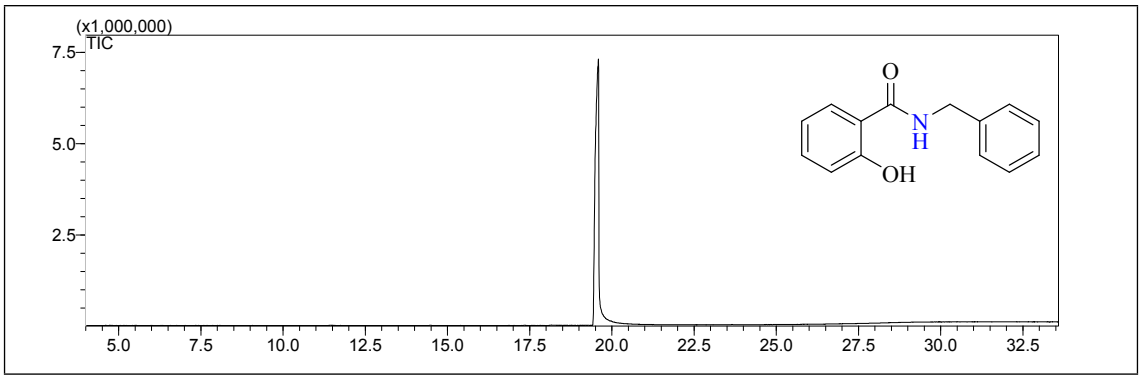

Figure S46. Chromatogram obtained by GC-MS (EI, 70 eV) of *N*-benzyl-2-hydroxybenzamide (**S-Aj).**

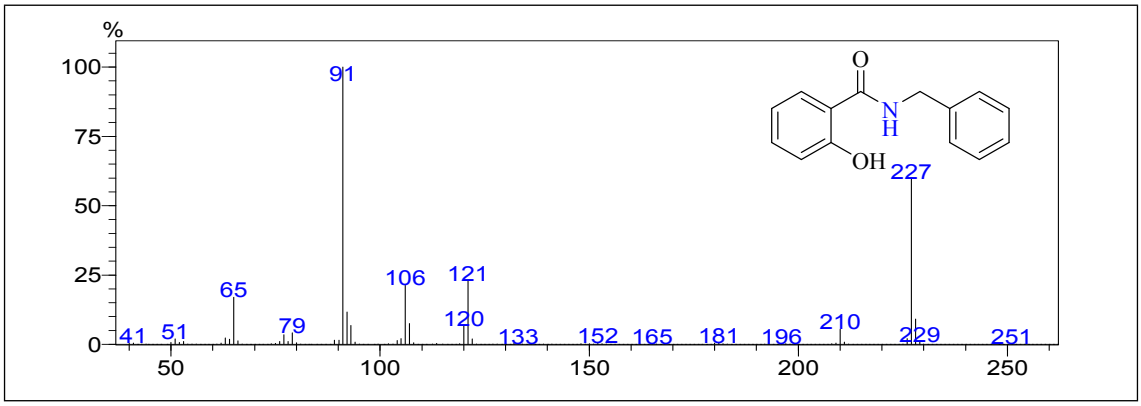

Figure S47. Mass spectrum (EI, 70 eV) of *N*-benzyl-2-hydroxybenzamide (**S-Aj**).

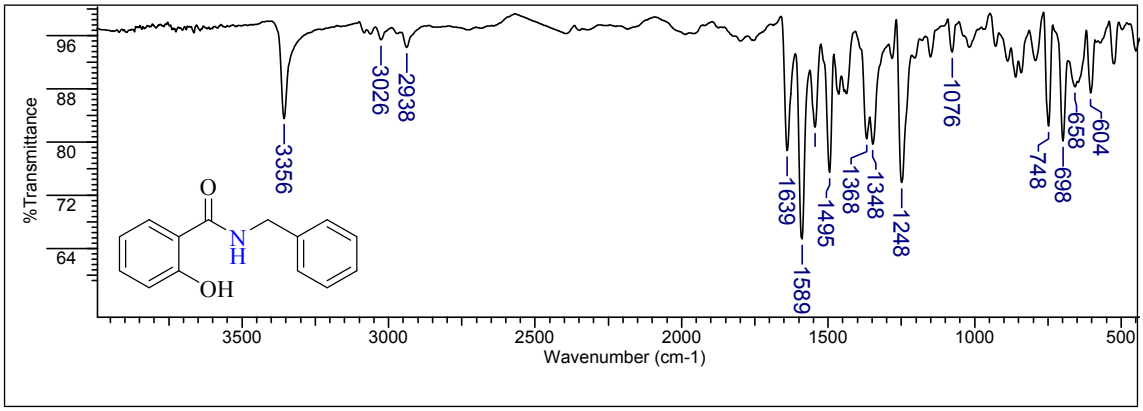

Figure S48. FTIR spectrum (Silicon plate) of *N*-benzyl-2-hydroxybenzamide (**S-Aj**).

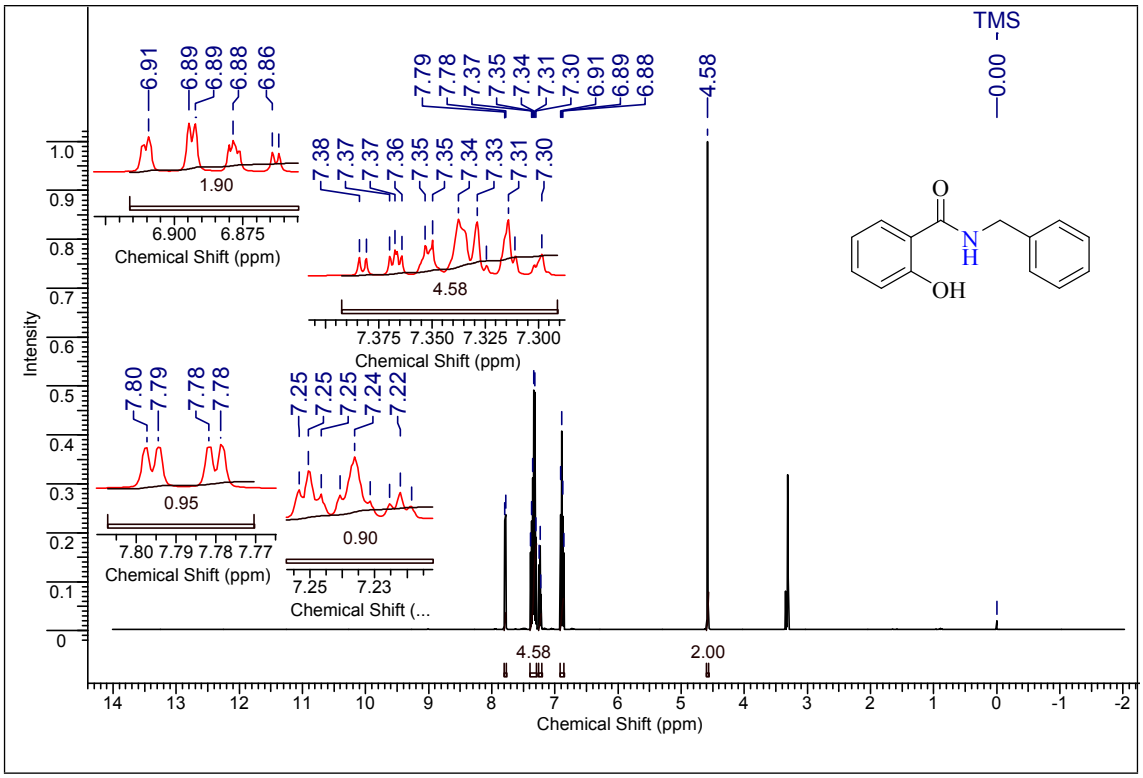

Figure S49. ^{1}H NMR spectrum (400 MHz, CD_3OD) of *N*-benzyl-2-hydroxybenzamide (**S-Aj**).

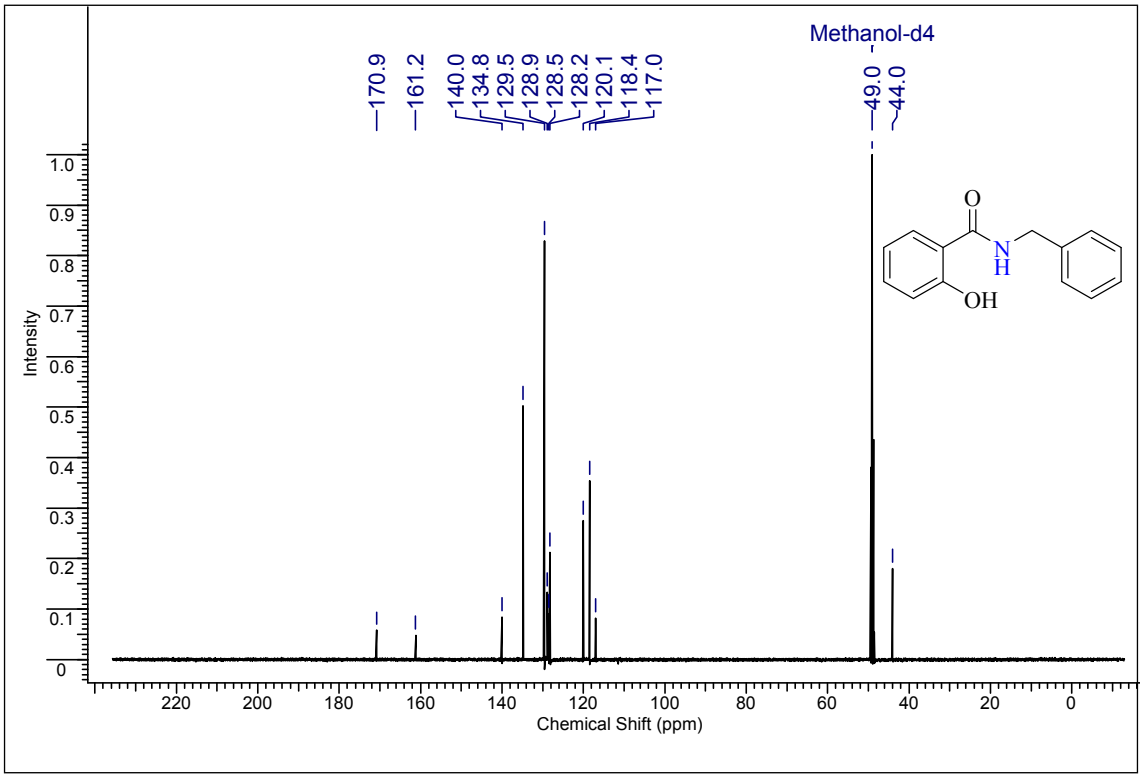

Figure S50. ^{13}C NMR spectrum (127 MHz, CD_3OD) of *N*-benzyl-2-hydroxybenzamide (**S-Aj**).

2. **Analytical curve of ethyl salicylate ES used to calculate the conversion of amide**

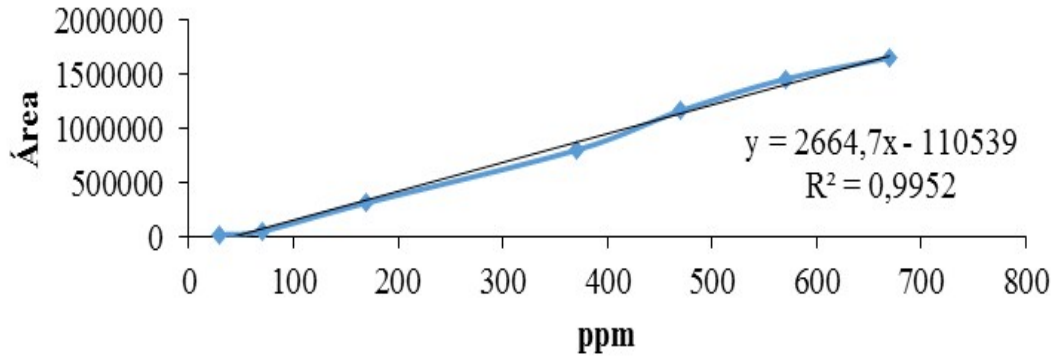

Figura S51. Analytical curve of ethyl salicylate used to calculate the conversion of amide.