**Supporting Information**

**for**

**Inhibition of gut bacterial *β*-glucuronidase by chemical components from black tea:** **inhibition interactions and molecular mechanism**

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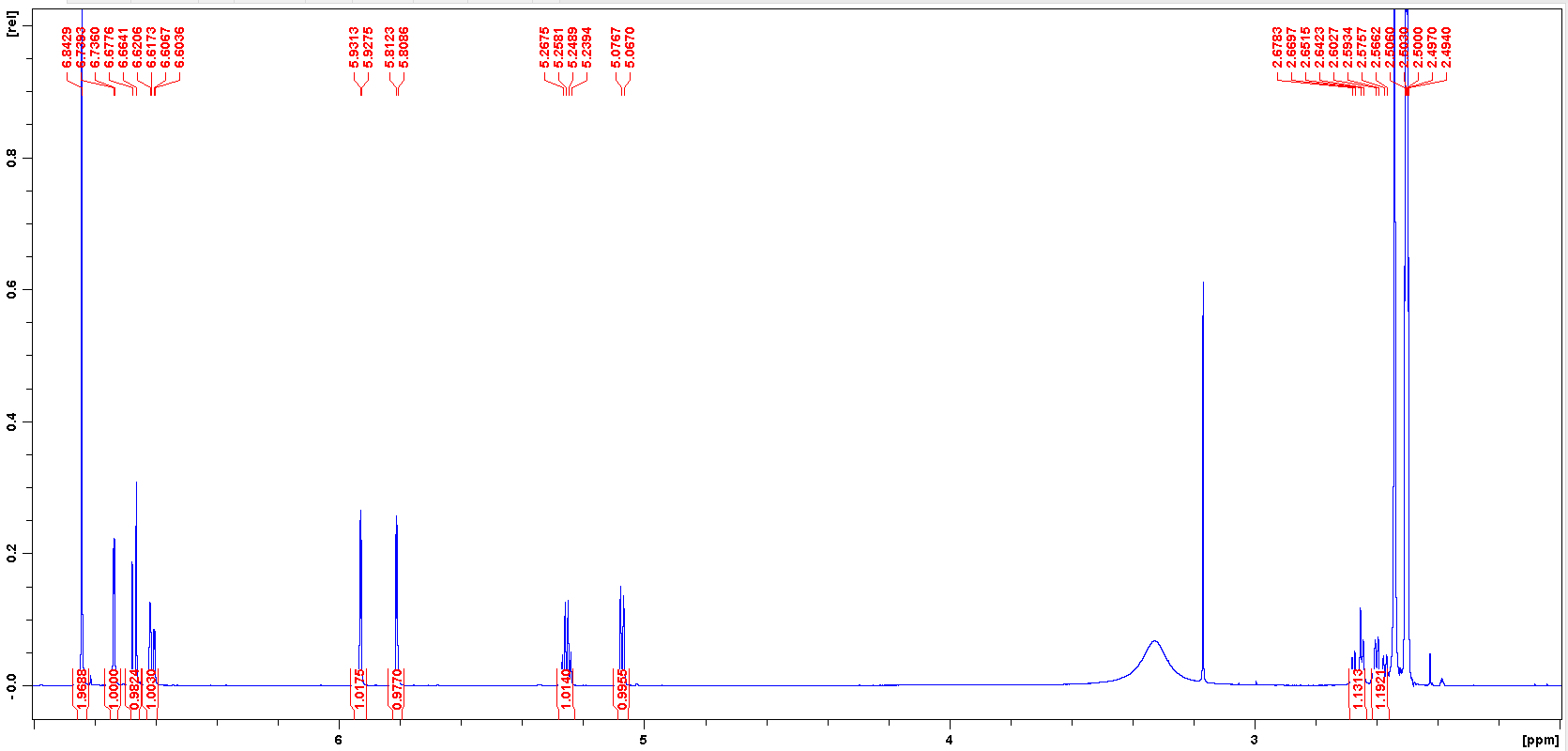
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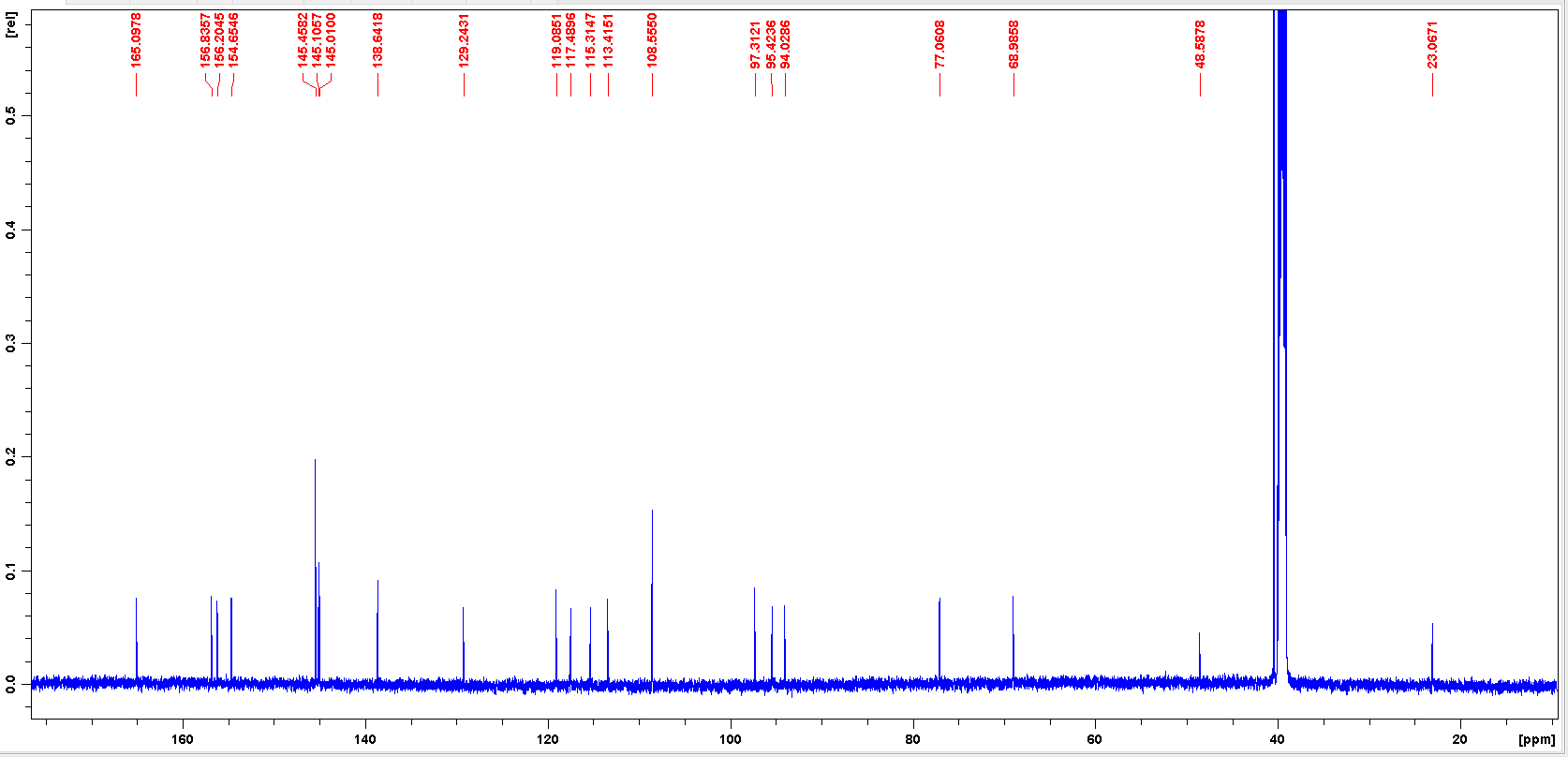
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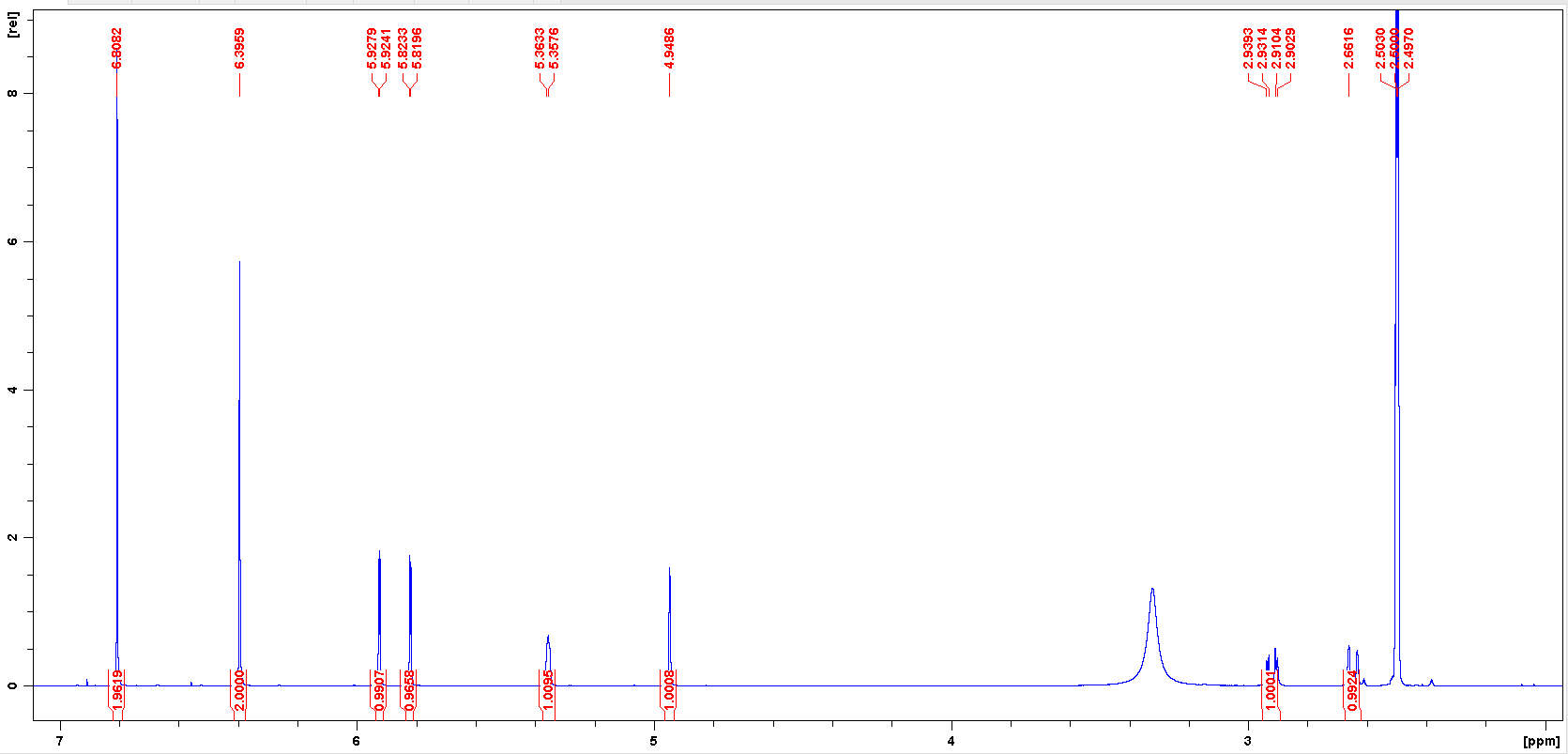
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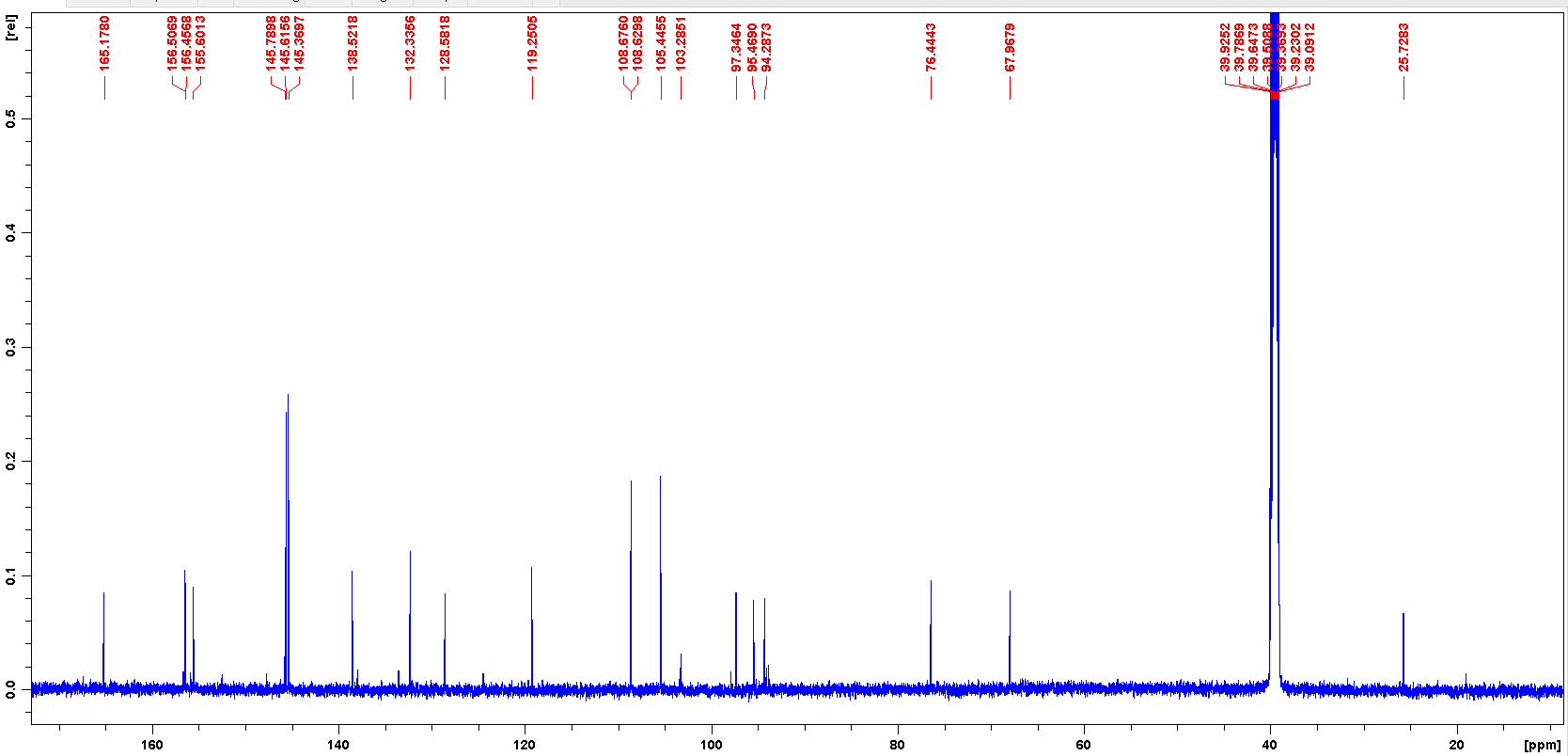
**Figure S1 1H NMR data of CG (600 MHz, DMSO-*d*6)**



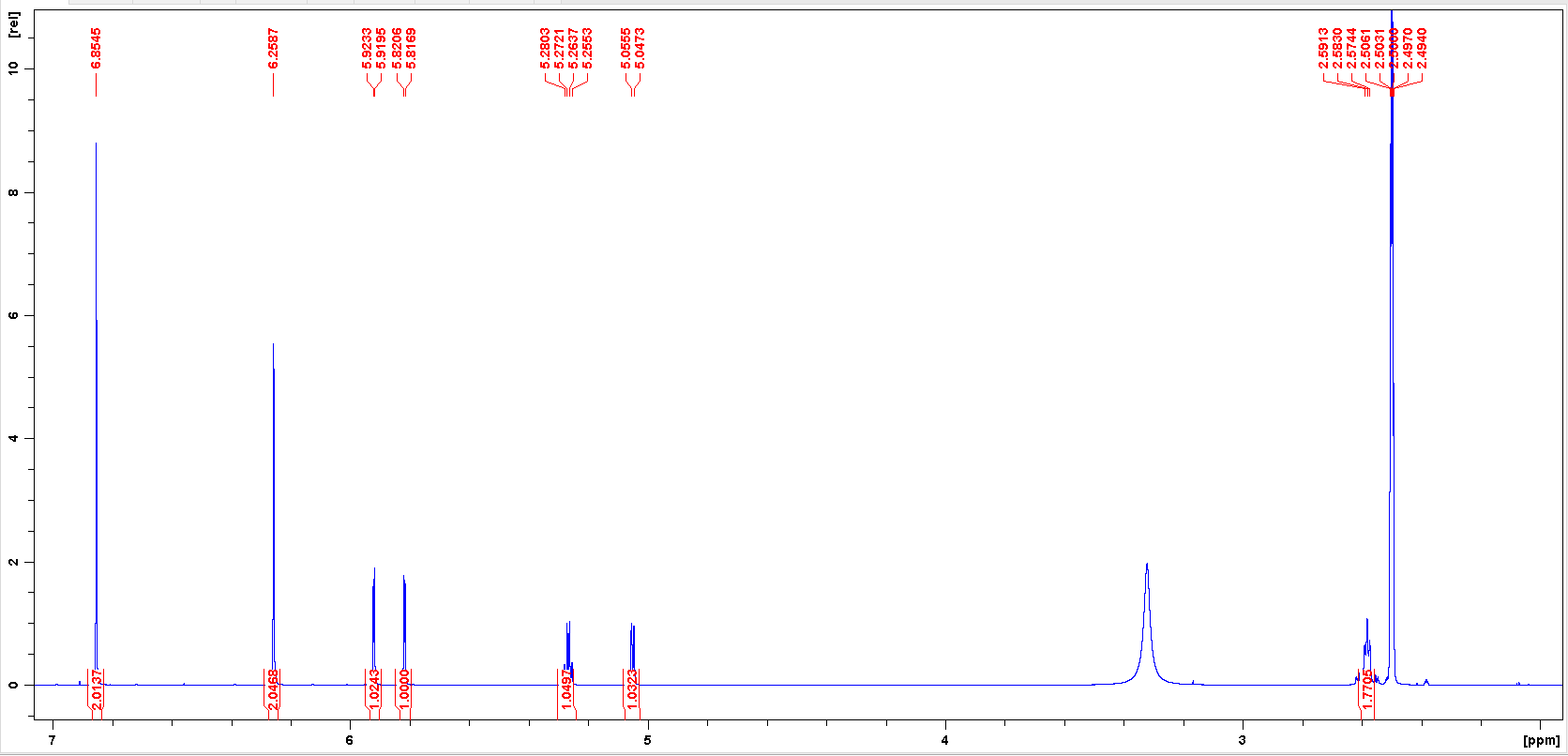
**Figure S2 13C NMR data of CG (150 MHz, DMSO-*d*6)**



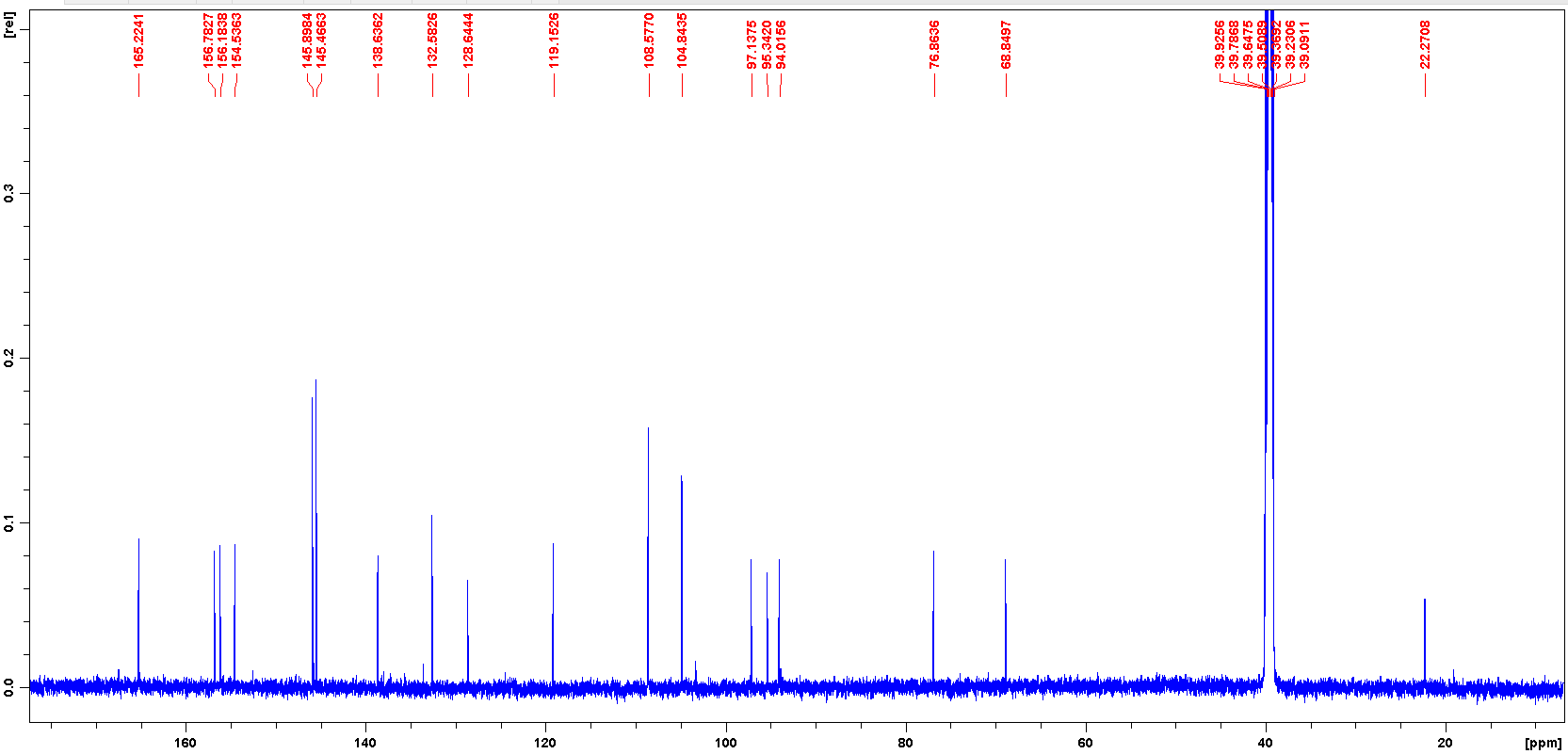
**Figure S3 1H NMR data of EGCG (600 MHz, DMSO-*d*6)**



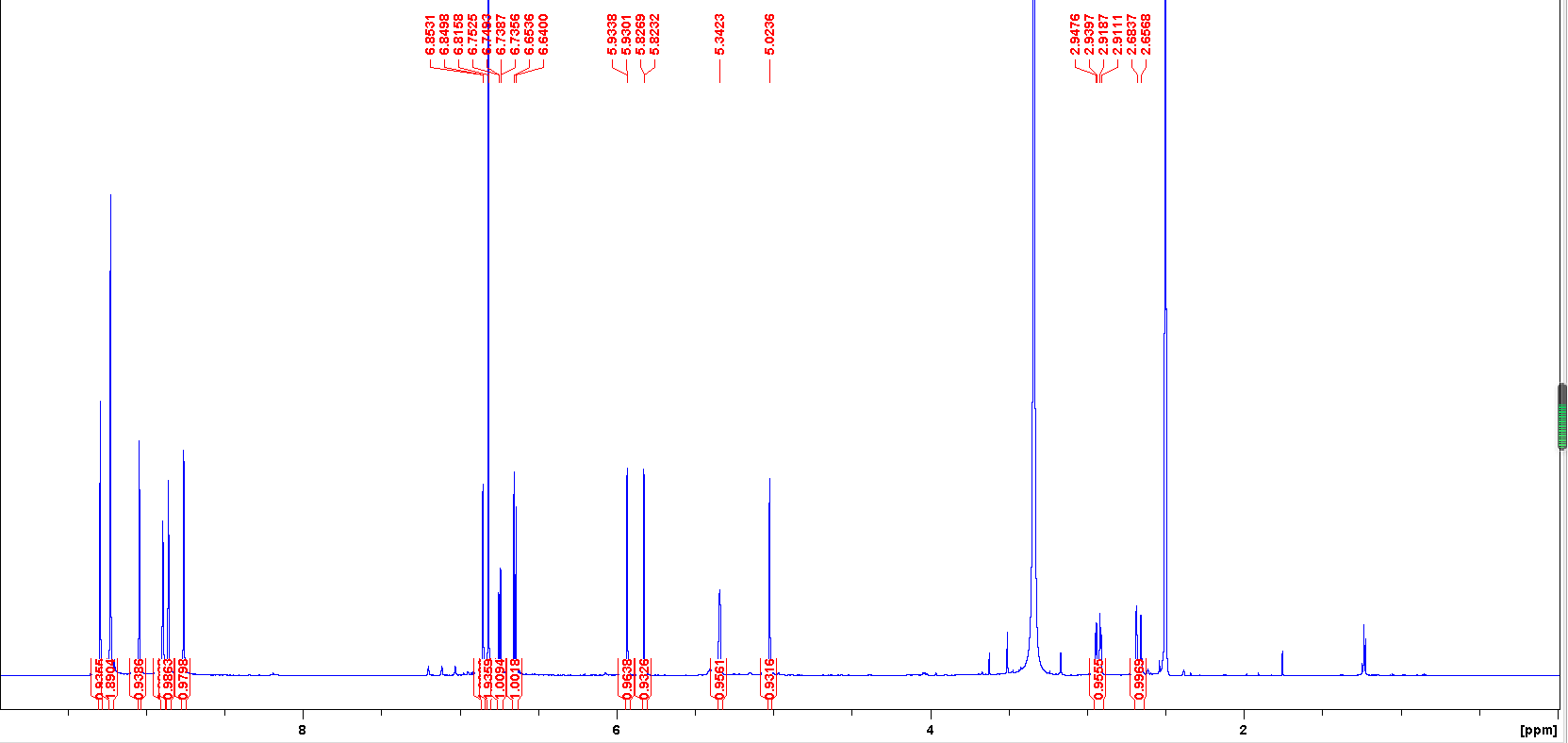
**Figure S4 13C NMR data of EGCG (150 MHz, DMSO-*d*6)**



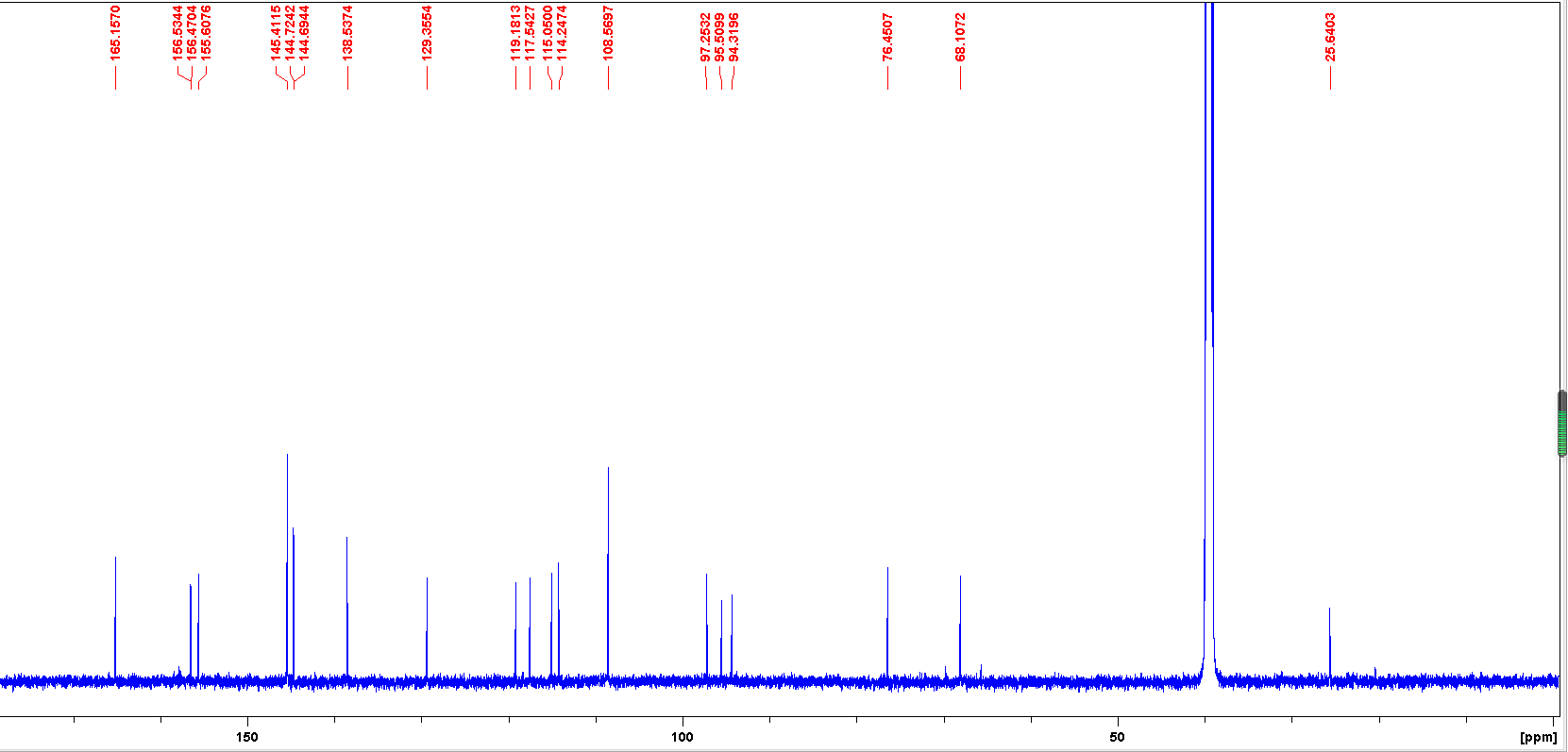
**Figure S5 1H NMR data of GCG (600 MHz, DMSO-*d*6)**



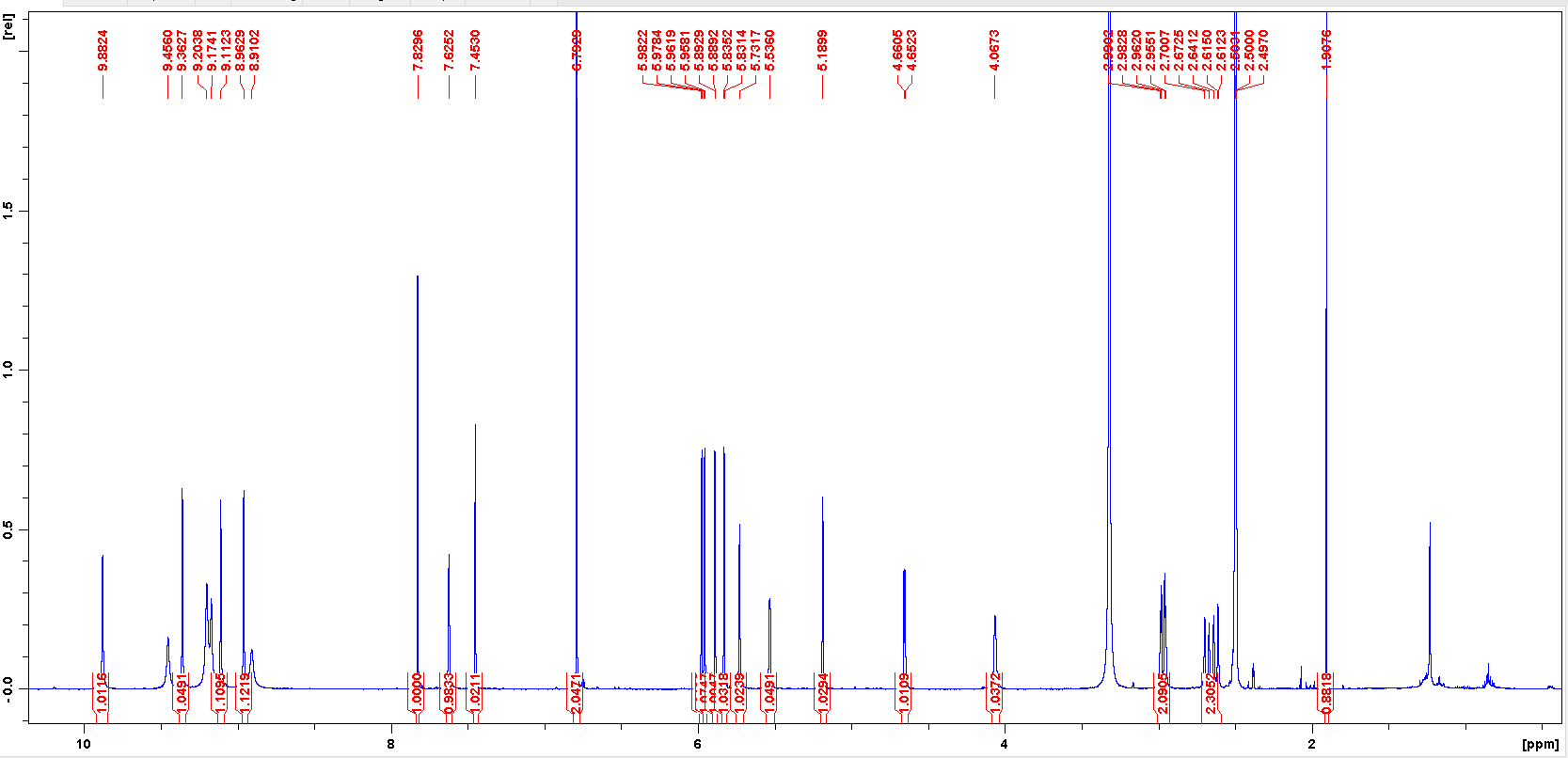
**Figure S6 13C NMR data of GCG (150 MHz, DMSO-*d*6)**



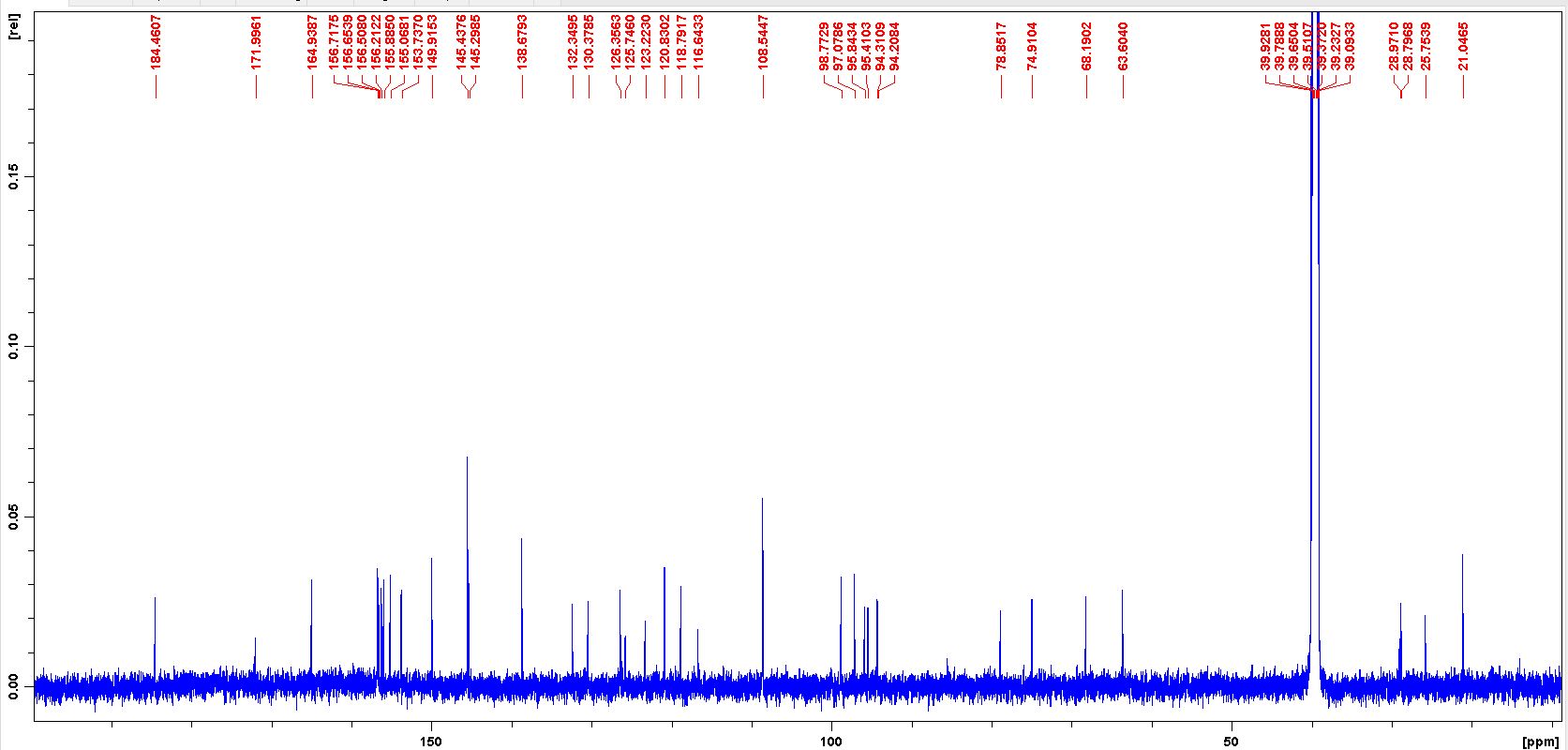
**Figure S7 1H NMR data ECG (600 MHz, DMSO-*d*6)**



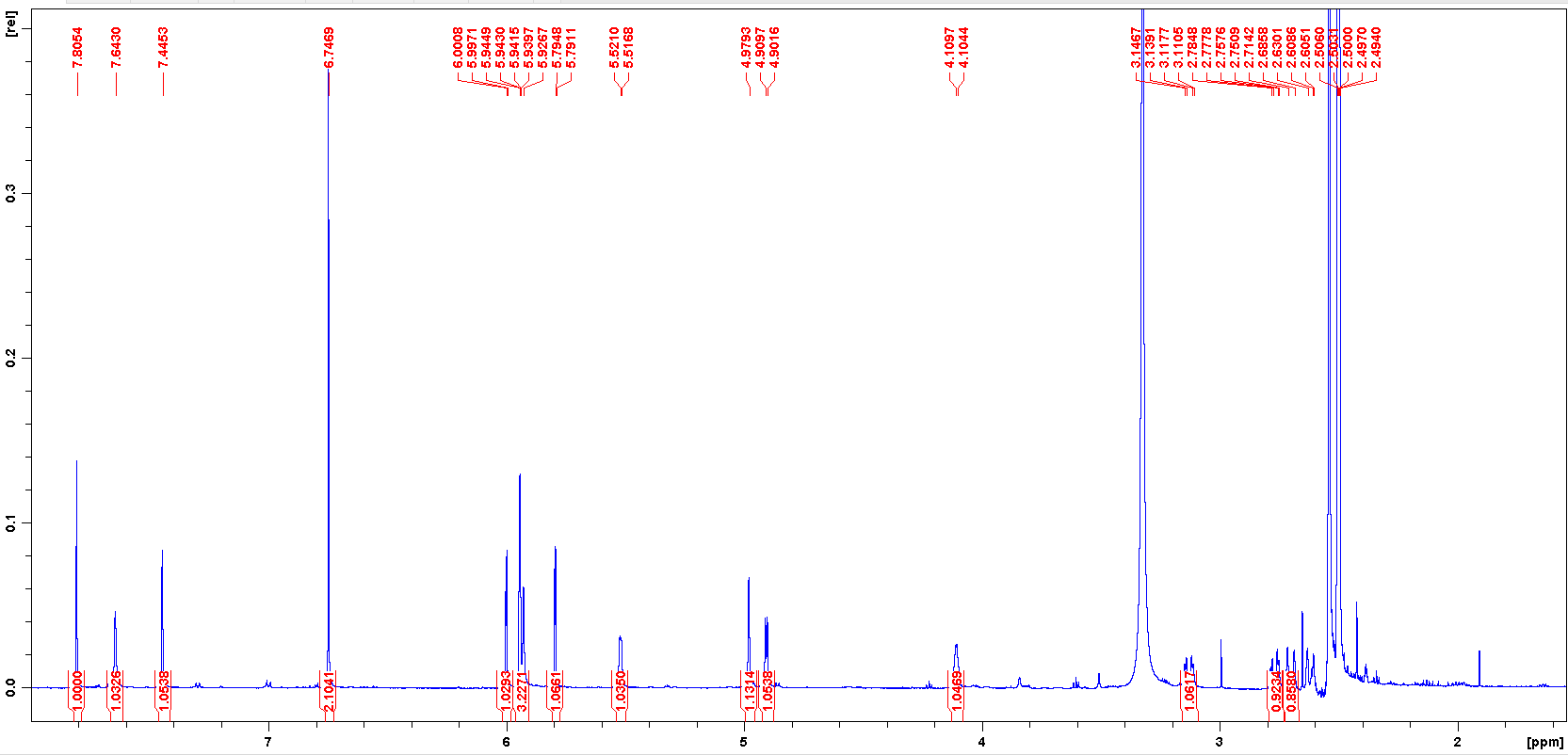
**Figure S8 13C NMR data of ECG (150 MHz, DMSO-*d*6)**



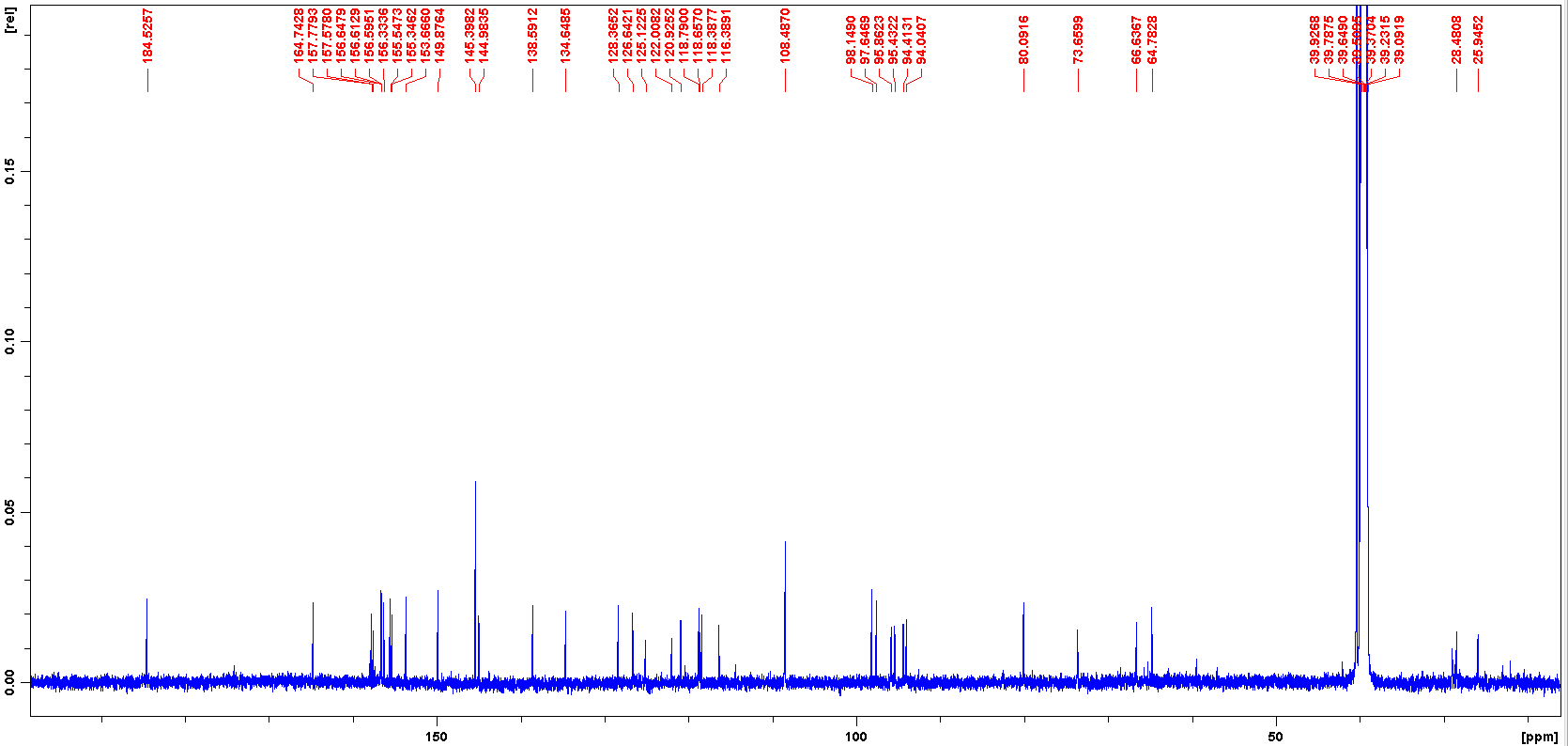
**Figure S9 1H NMR data of TF3G (600 MHz, DMSO-*d*6)**



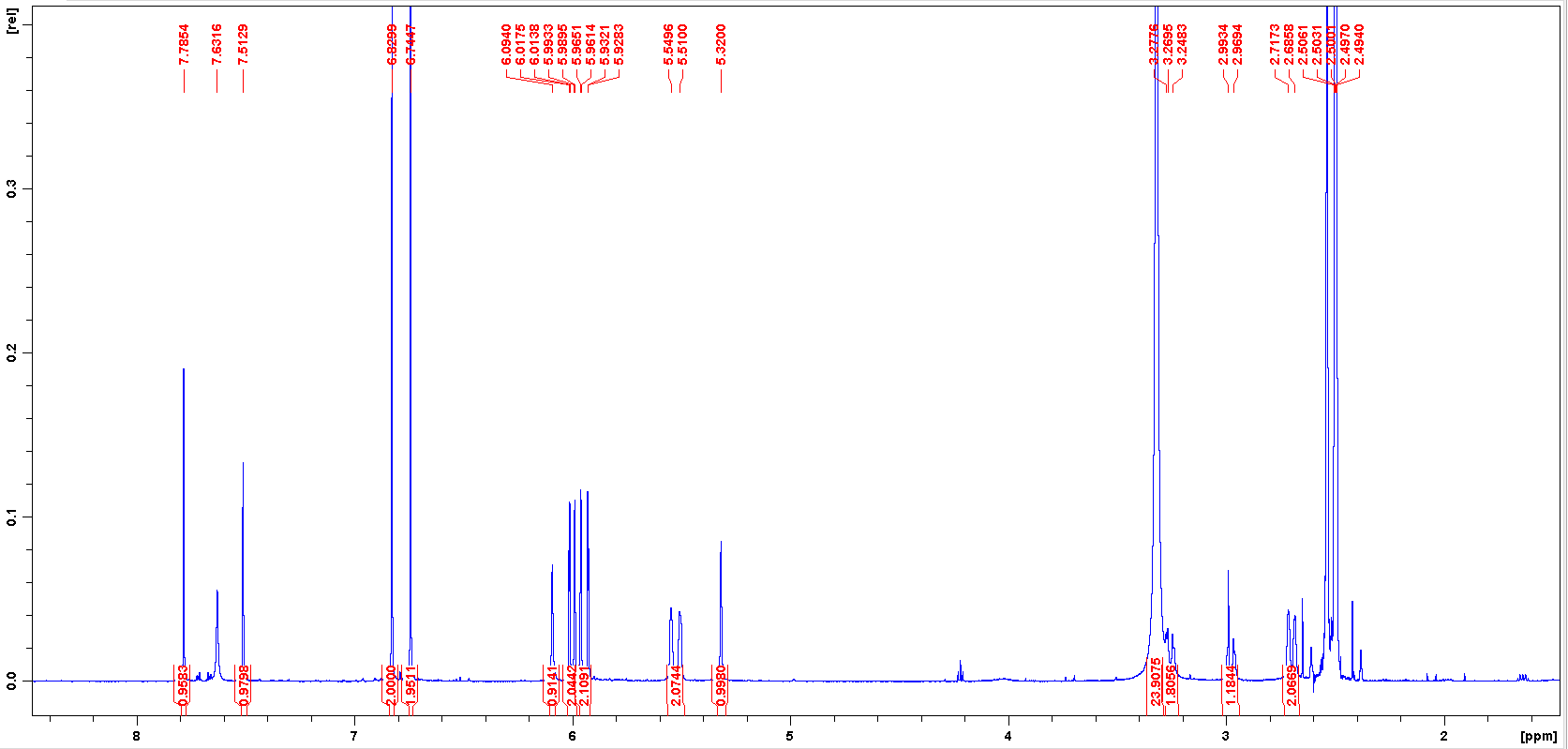
**Figure S10 13C NMR data of TF3G (150 MHz, DMSO-*d*6)**



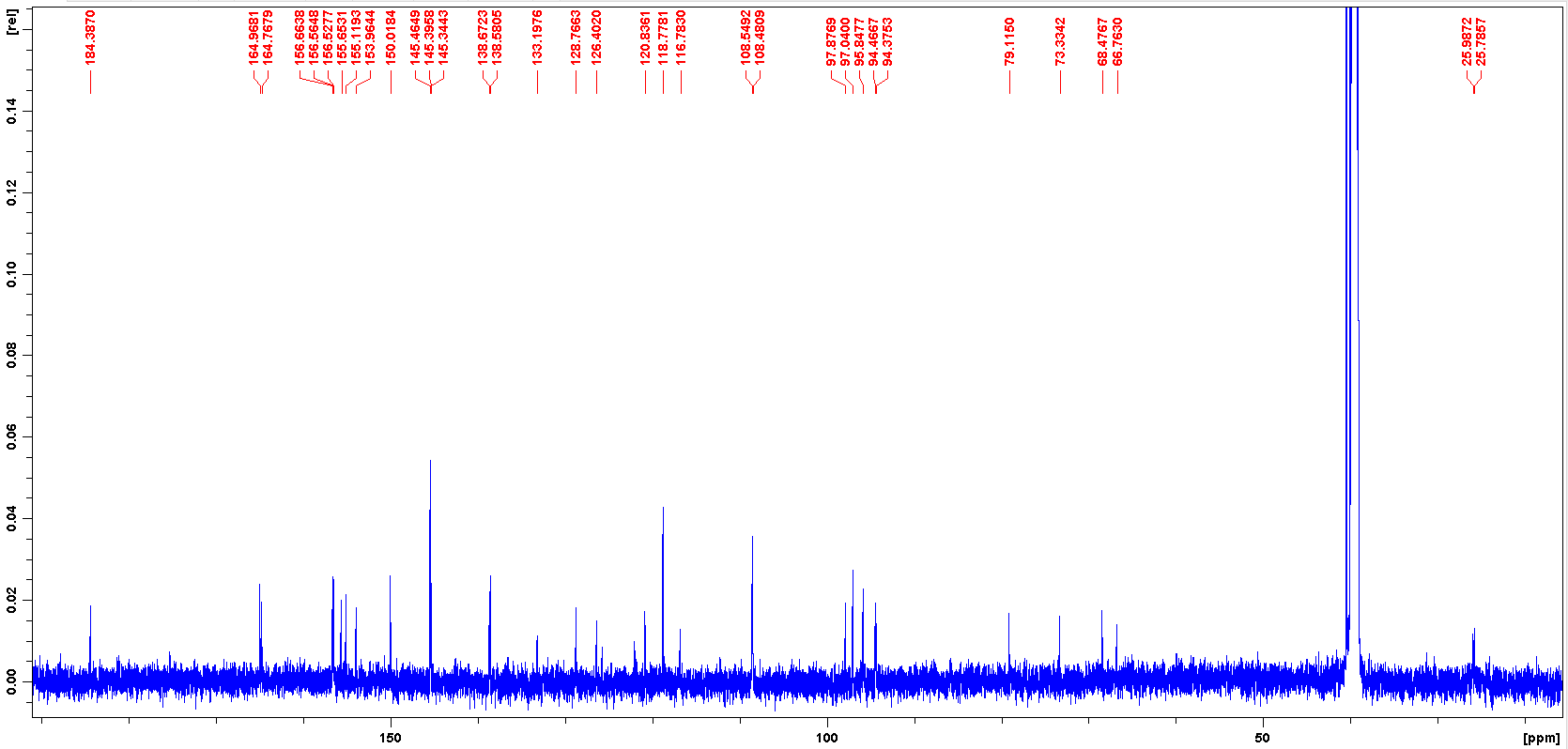
**Figure S11 1H NMR data of TF3’G (600 MHz, DMSO-*d*6)**



**Figure S12 13C NMR data of TF3’G (150 MHz, DMSO-*d*6)**



**Figure S13 1H NMR data of TFDG (600 MHz, DMSO-*d*6)**



**Figure S14 13C NMR data of TFDG (150 MHz, DMSO-*d*6)**

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**Figure S15.** Inhibitory effects of the seven bioactive constitutes in black tea against SN-38G hydroxylation in EcGUS. Left: the concentration-dependent inhibition curves of CG (a), GCG (c), ECG (e), EGCG (g), TF-3-G (i), TF-3′-G (k), and TFDG (m). Right: the representative Lineweaver-Burk plots of CG (b), GCG (d), ECG (f), EGCG (h), TF-3-G (j), TF-3′-G (l), and TFDG (n).



**Figure S16.** 2D interaction description of CG ( A), GCG (B), ECG (C), EGCG (D), TF-3-G (E), TF-3′-G (F) and TFDG (G) with EcGUS.