

# Highly Regioselective and Stereoselective Biohydroxylations of Oxandrolone

Paulina Łyczko\*, Anna Panek and Alina Świzdor\*

Department of Chemistry, Wrocław University of Environmental and Life Sciences, 50-375 Wrocław, Poland; anna.panek@upwr.edu.pl

\* Correspondence: paulina.lyczko@upwr.edu.pl (P.Ł.); alina.swizdor@upwr.edu.pl (A.Ś.)

**Contents:**

Figure S1. MS spectrum of 12 $\beta$ -hydroxyoxandrolone (2).	2
Figure S2. <sup>1</sup> H NMR spectrum of 12 $\beta$ -hydroxyoxandrolone (2).	2
Figure S3. <sup>13</sup> C NMR spectrum of 12 $\beta$ -hydroxyoxandrolone (2).	3
Figure S4. NOESY spectrum of 12 $\beta$ -hydroxyoxandrolone (2).	3
Figure S5. MS spectrum of 9 $\alpha$ -hydroxyoxandrolone (3).	5
Figure S6. <sup>1</sup> H NMR spectrum of 9 $\alpha$ -hydroxyoxandrolone (3).	4
Figure S7. <sup>13</sup> C NMR spectrum of 9 $\alpha$ -hydroxyoxandrolone (3).	6
Figure S8. MS spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).	6
Figure S9. <sup>1</sup> H NMR spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).	7
Figure S10. <sup>13</sup> C NMR spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).	7
Figure S11. NOESY spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).	8
Figure S12. MS spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).	8
Figure S13. <sup>1</sup> H NMR spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).	9
Figure S14. <sup>13</sup> C NMR spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).	9
Figure S15. DEPT spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).	10
Figure S16. HSQC spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).	10
Figure S17. NOESY spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).	10

**Citation:** Łyczko, P.; Panek, A.; Świzdor, A. Highly regio- and stereoselective biohydroxylations of oxandrolone. *Catalysts* **2020**, *11*, x. <https://doi.org/10.3390/xxxxx>

Received: 05 December 2020

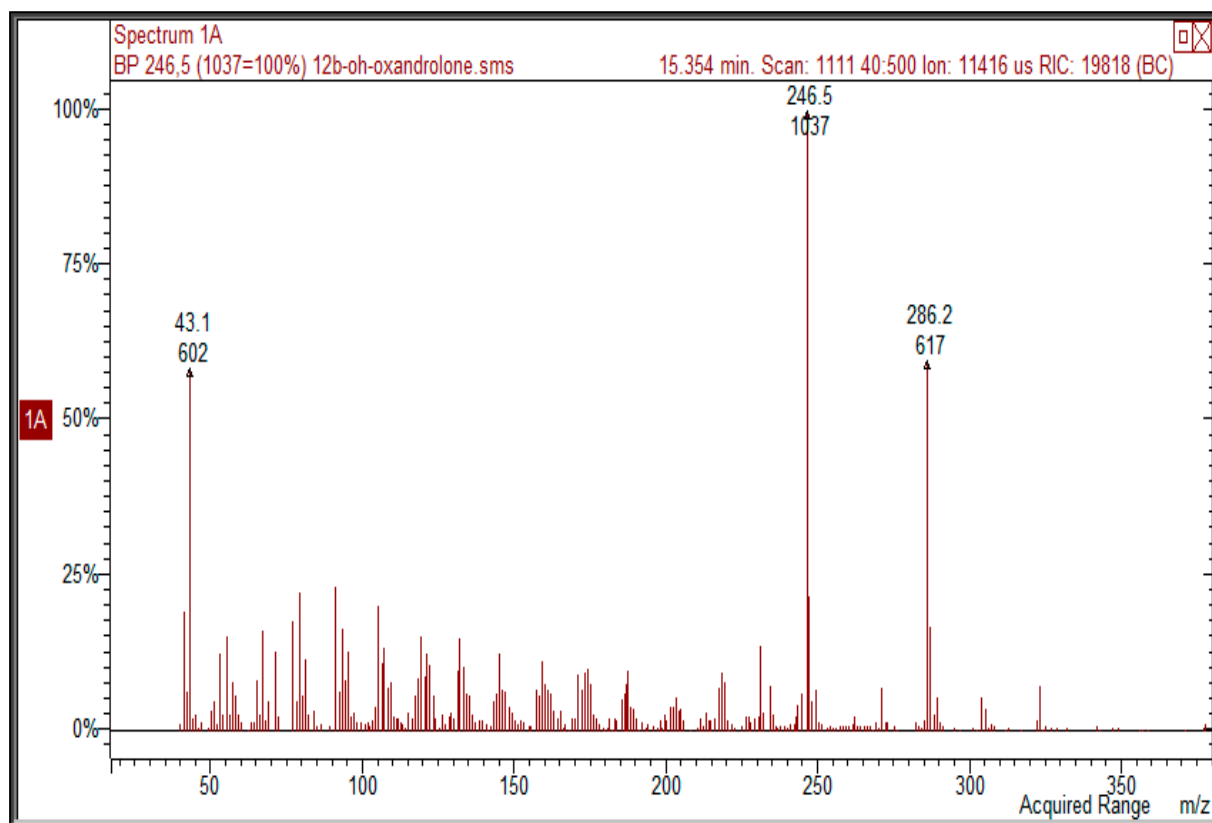
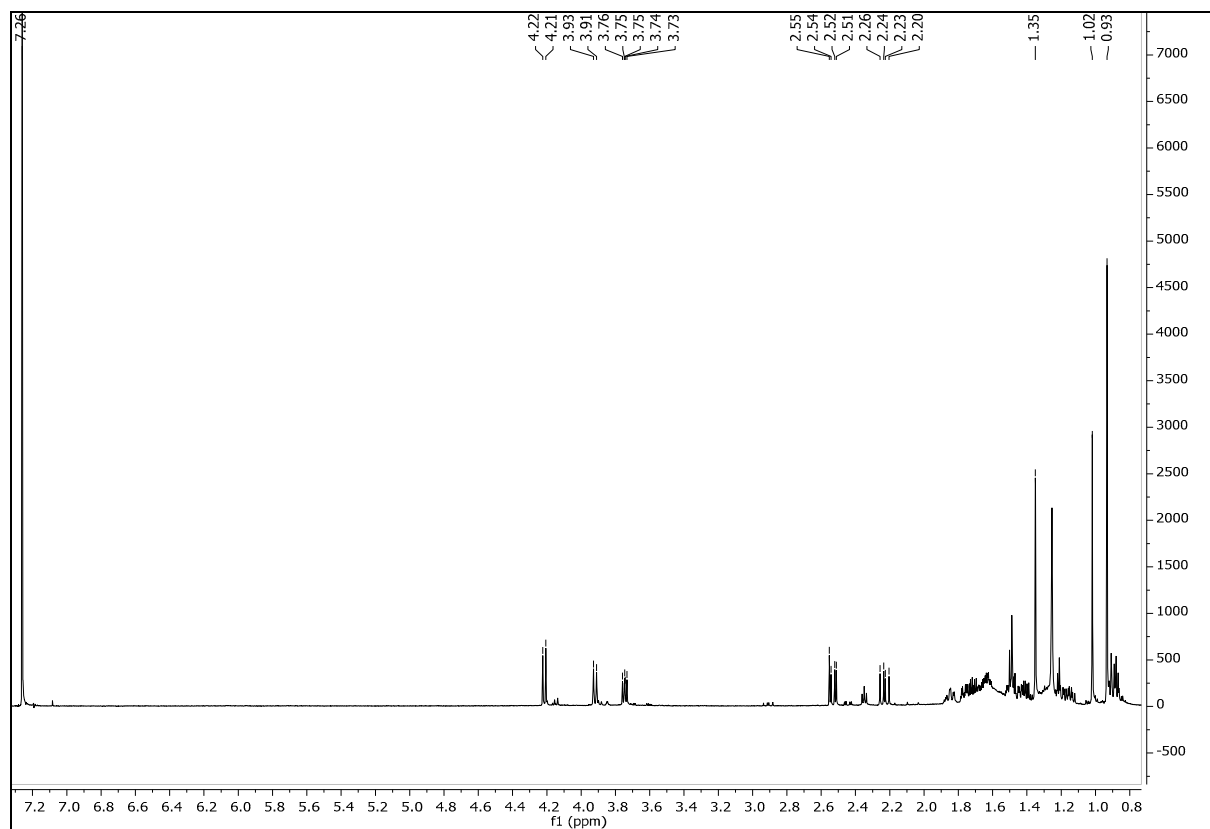
Accepted: 23 December 2020

Published: date

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2020 by the author. Figure S submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

Figure S1. MS spectrum of 12 $\beta$ -hydroxyoxandrolone (2).Figure S2.  $^1\text{H}$  NMR spectrum of 12 $\beta$ -hydroxyoxandrolone (2).

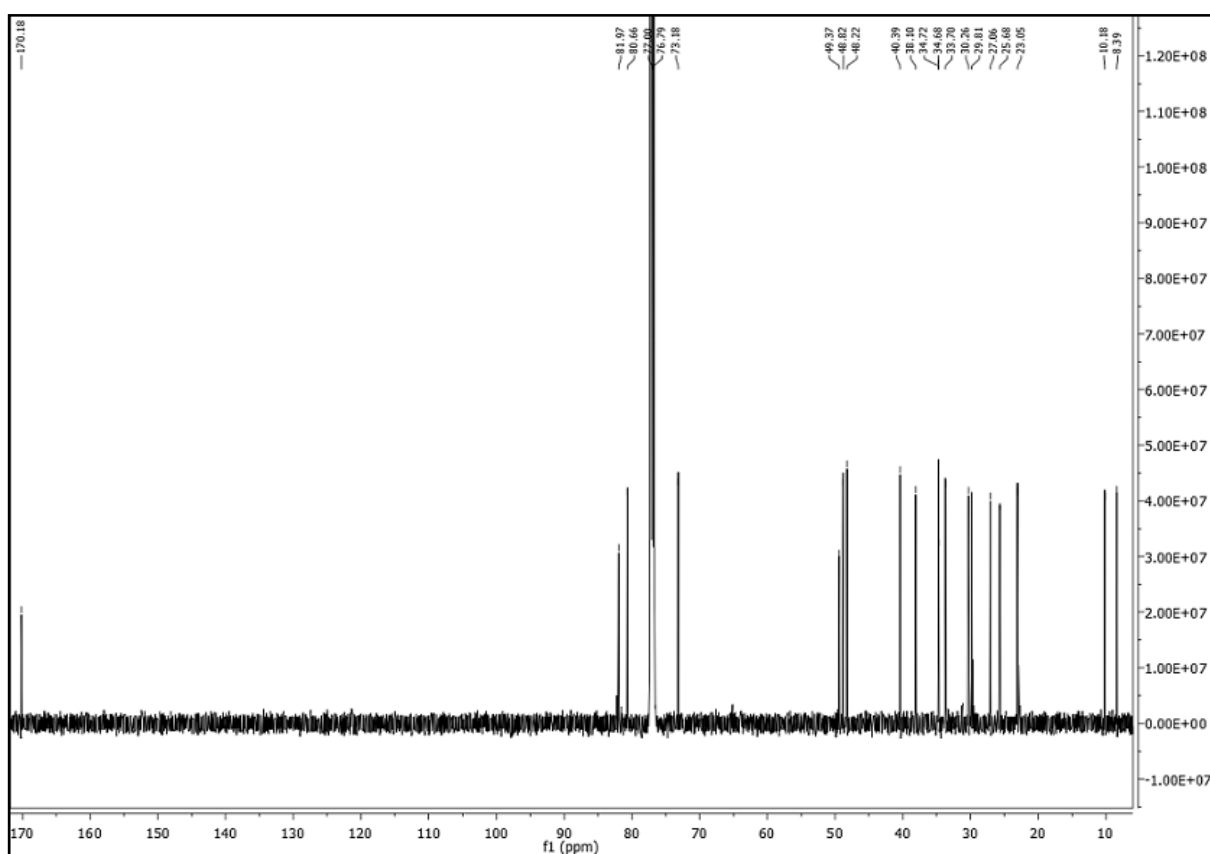
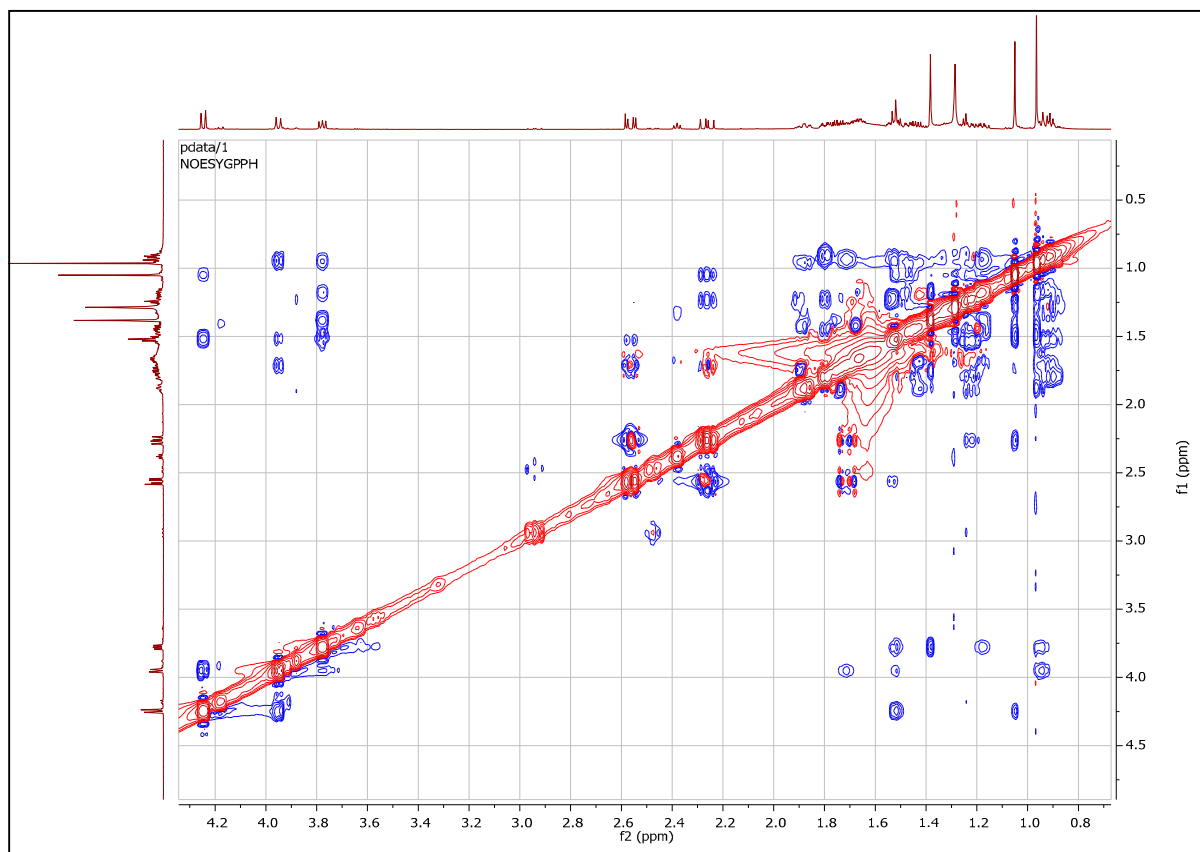
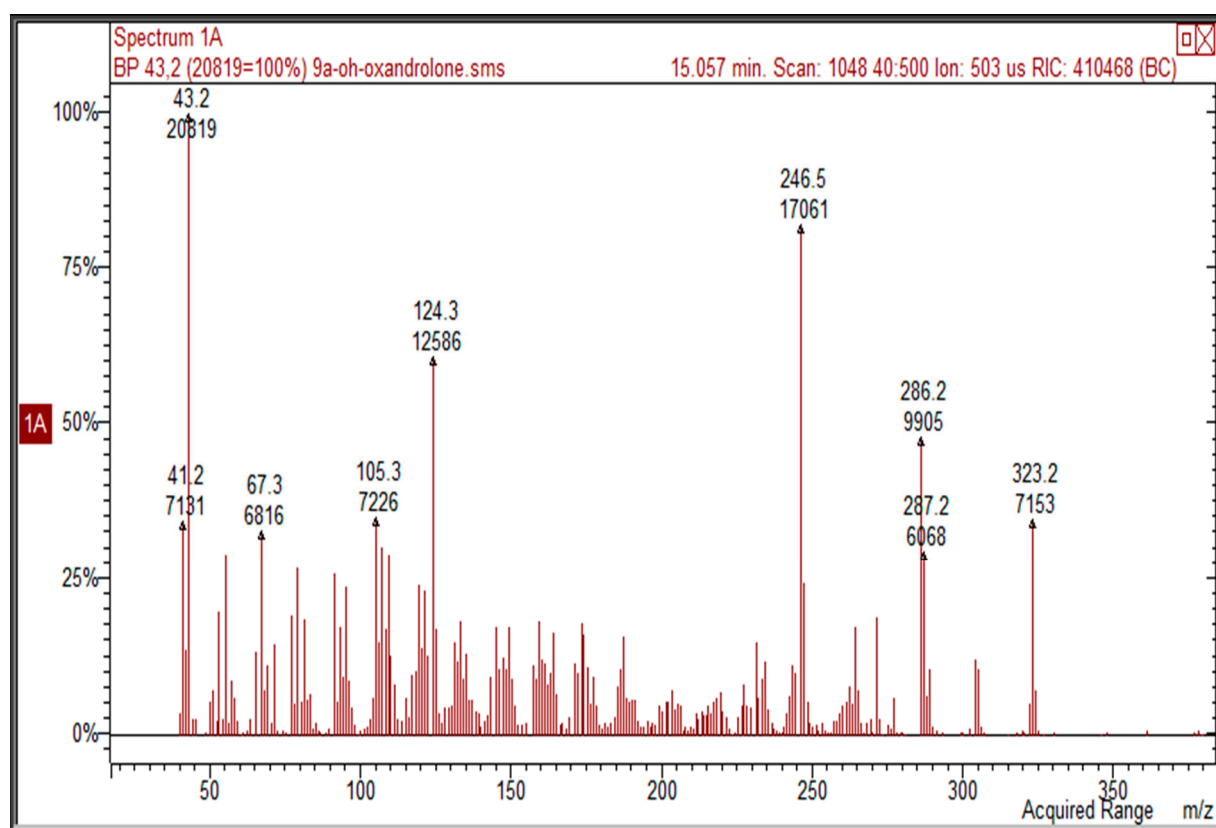
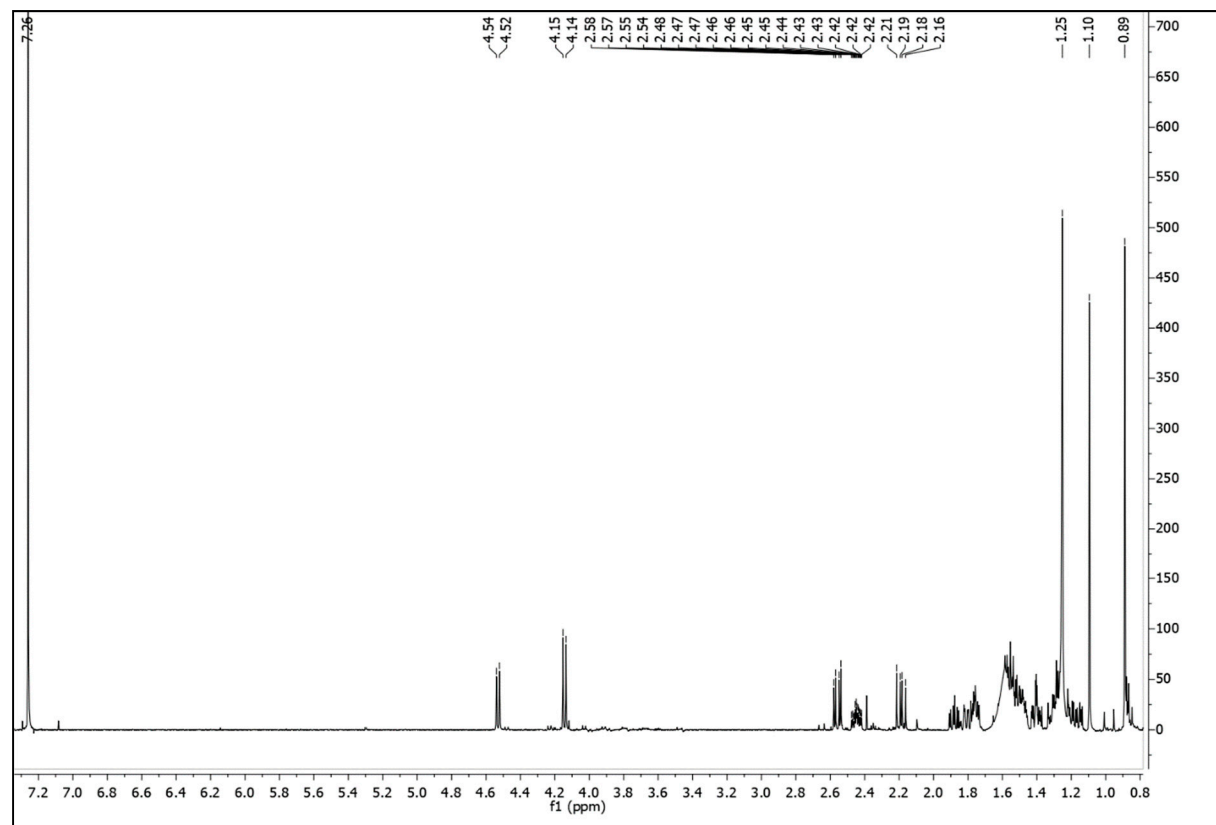
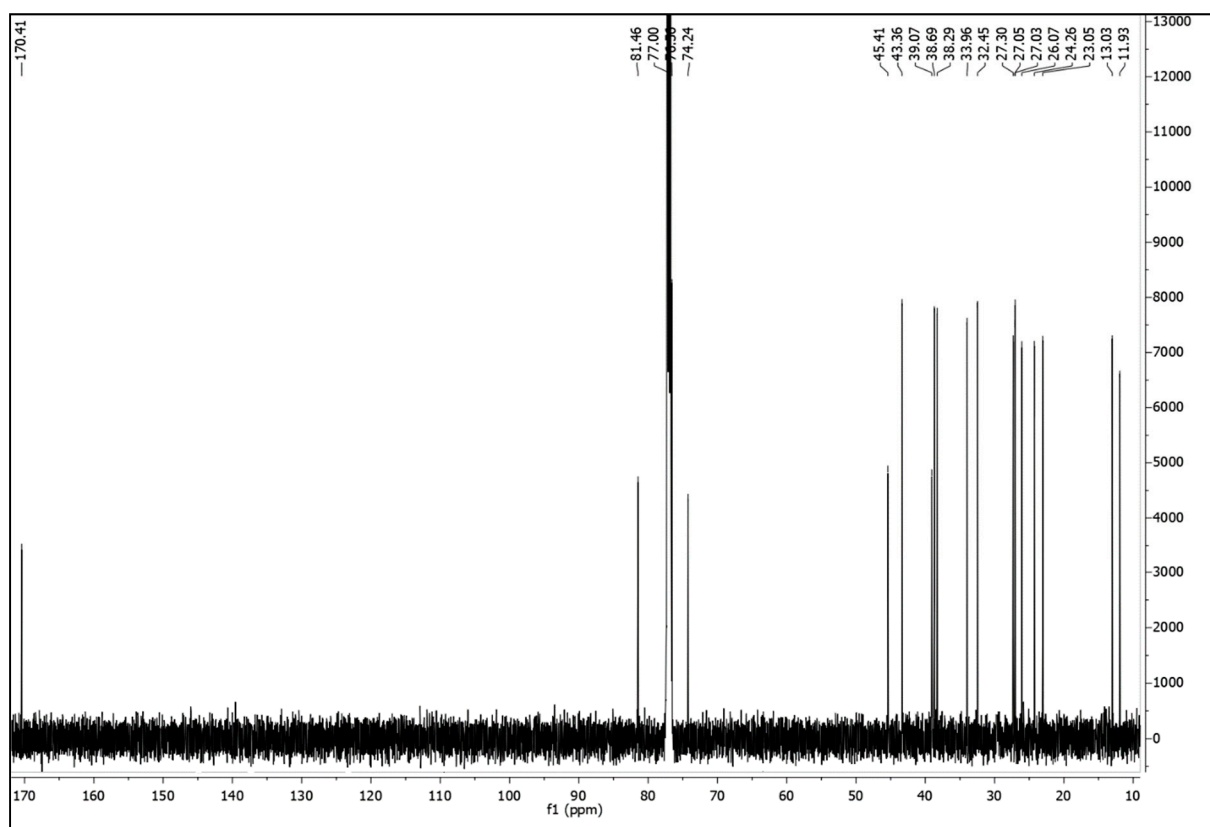
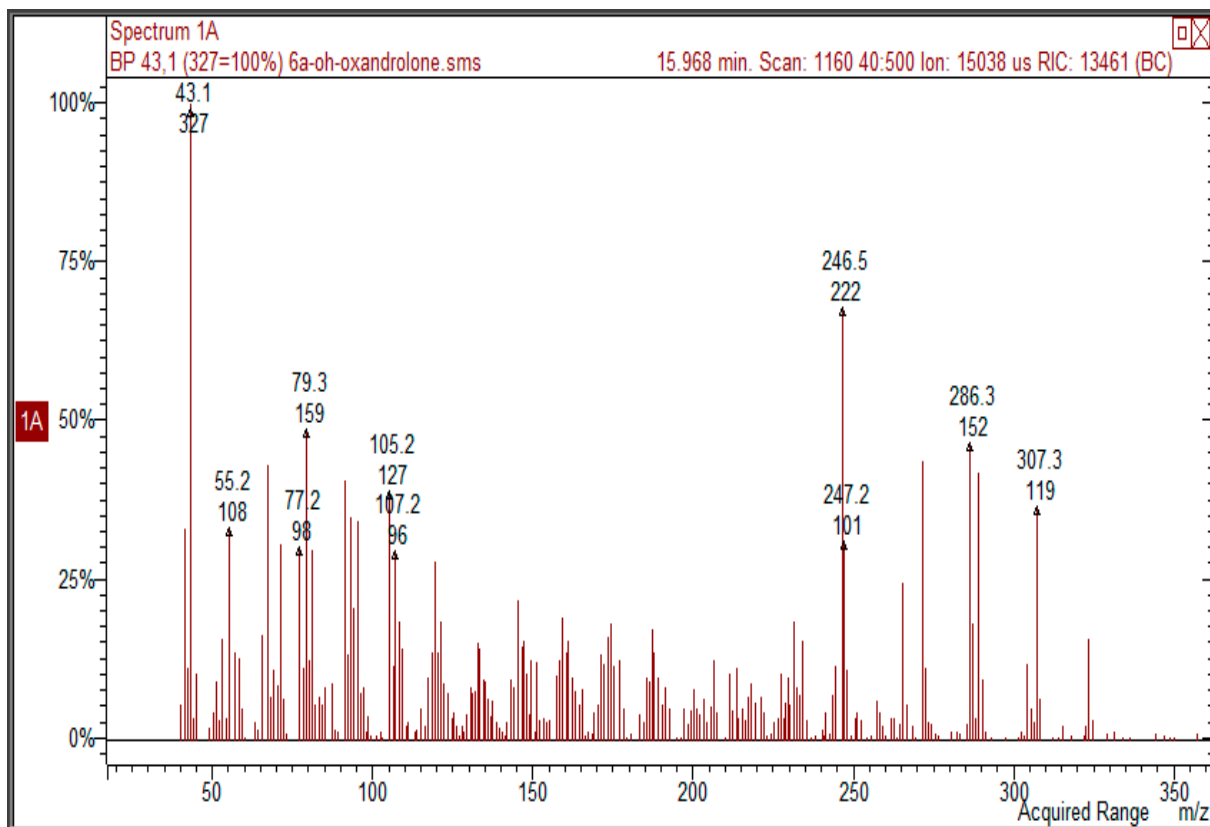
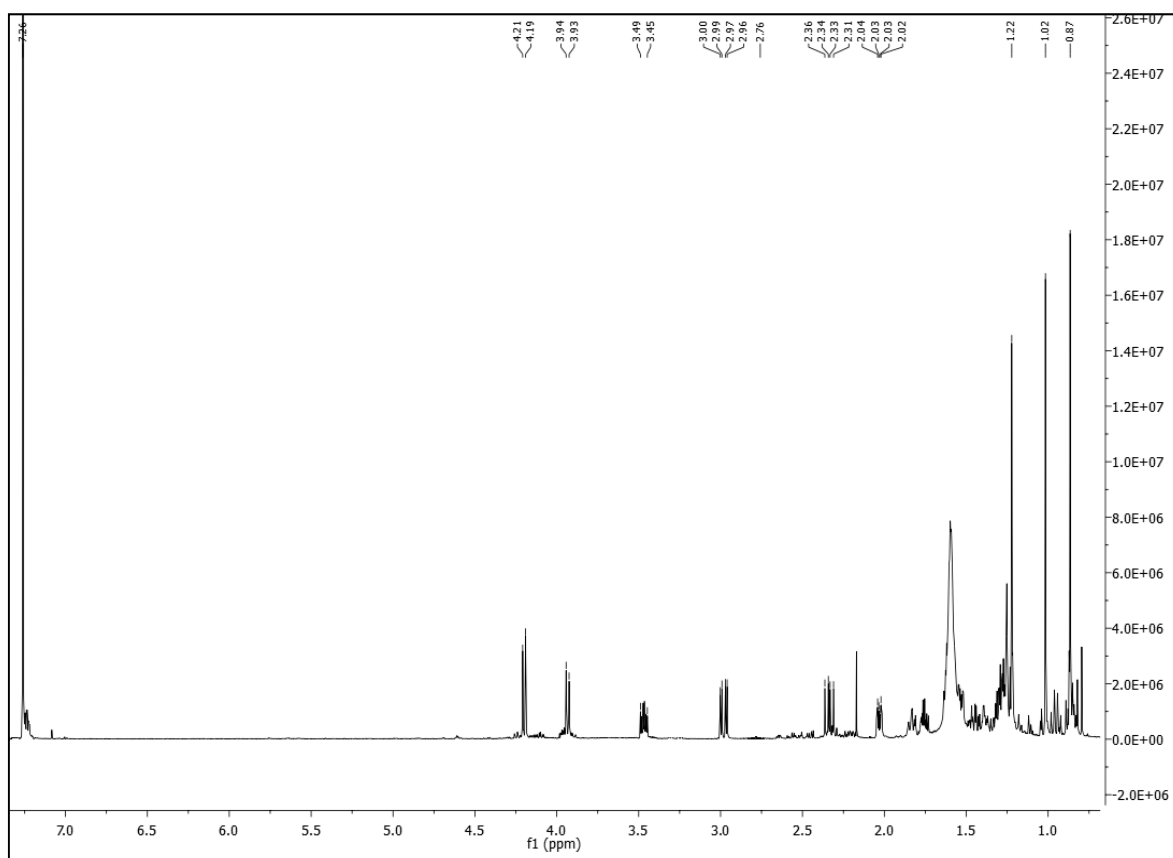
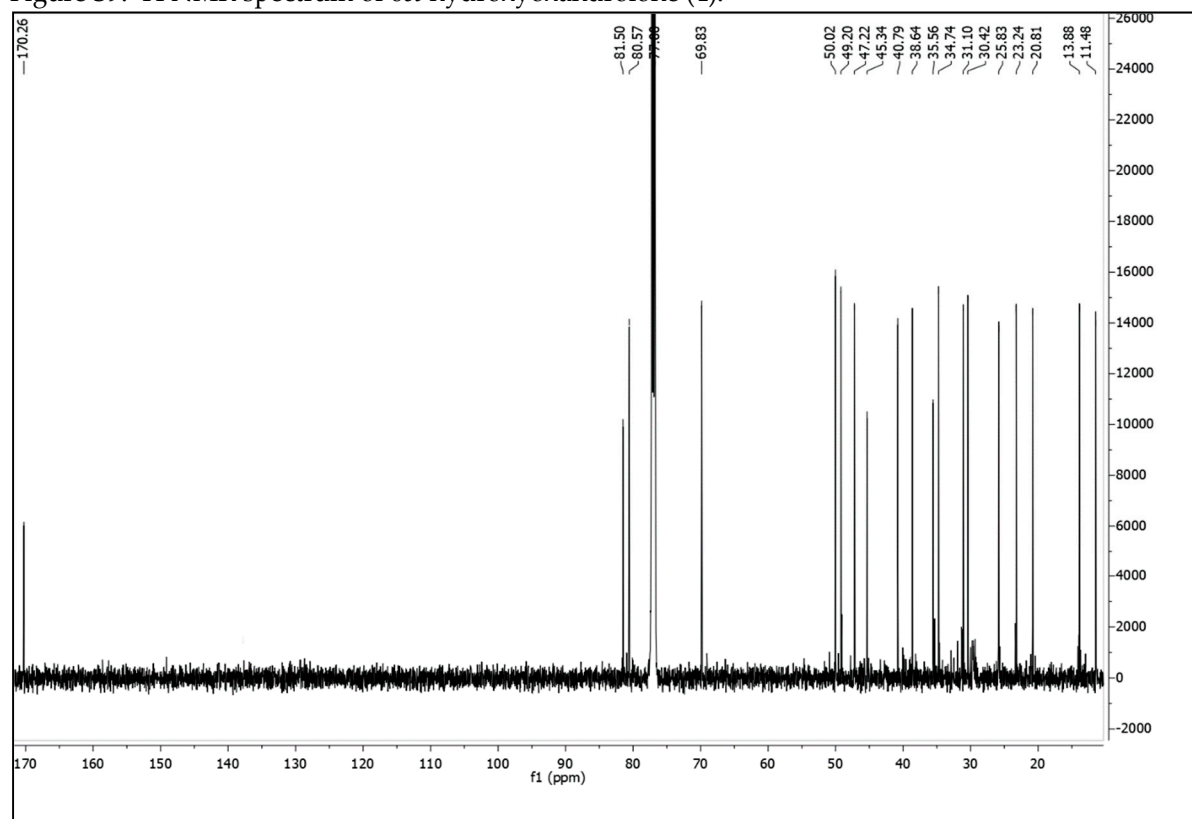
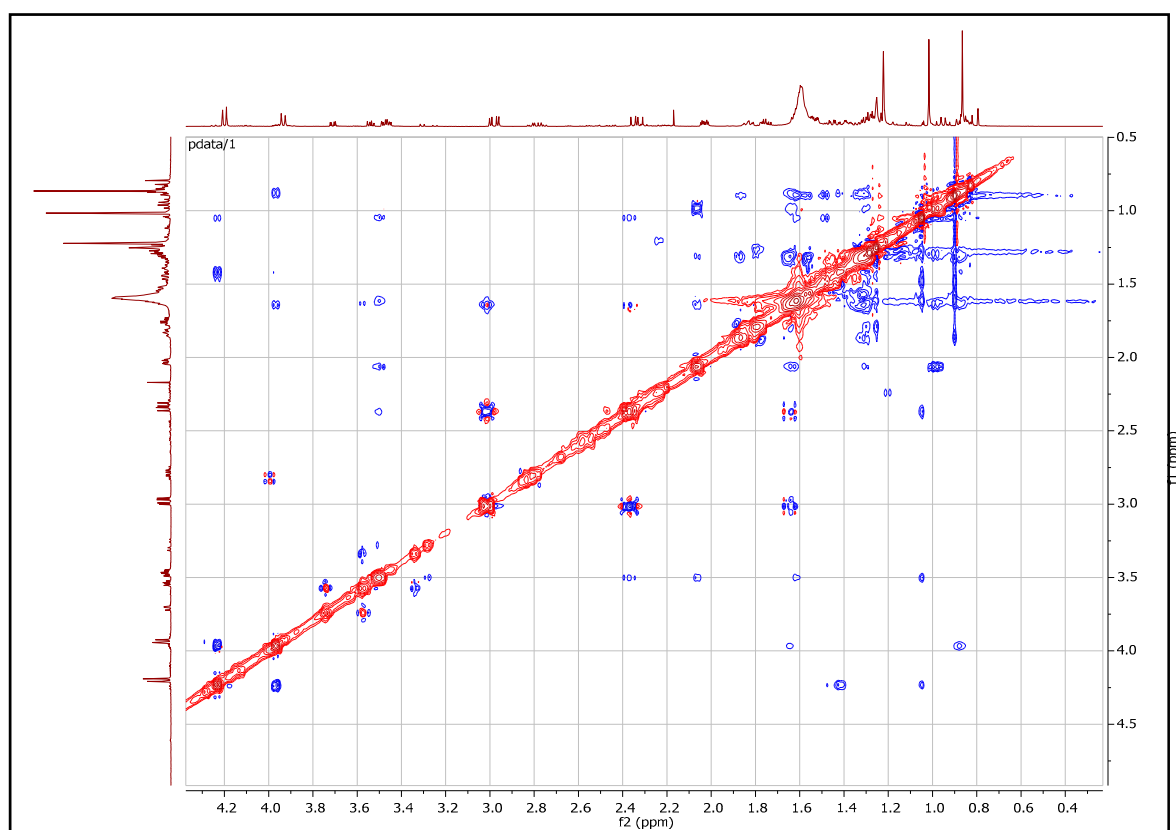
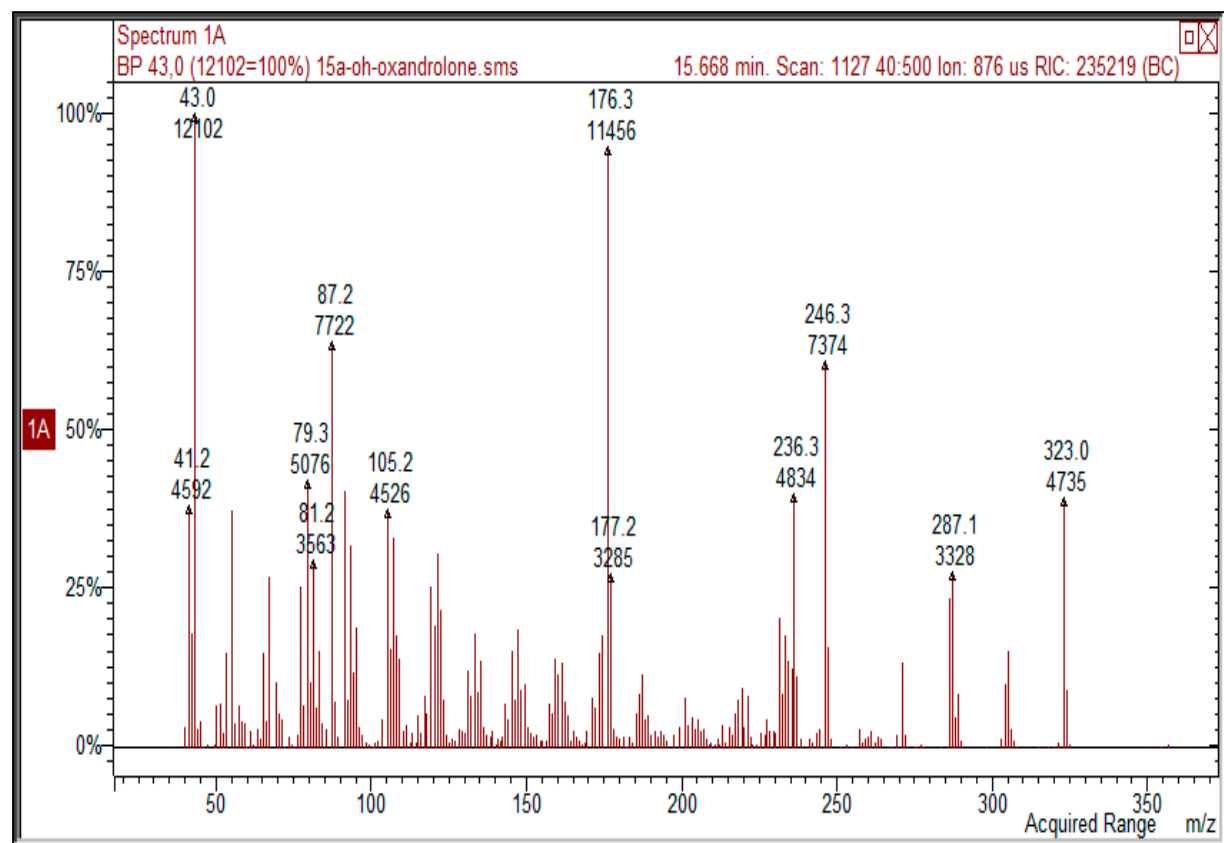
Figure S3. <sup>13</sup>C NMR spectrum of 12β-hydroxyoxandrolone (2).

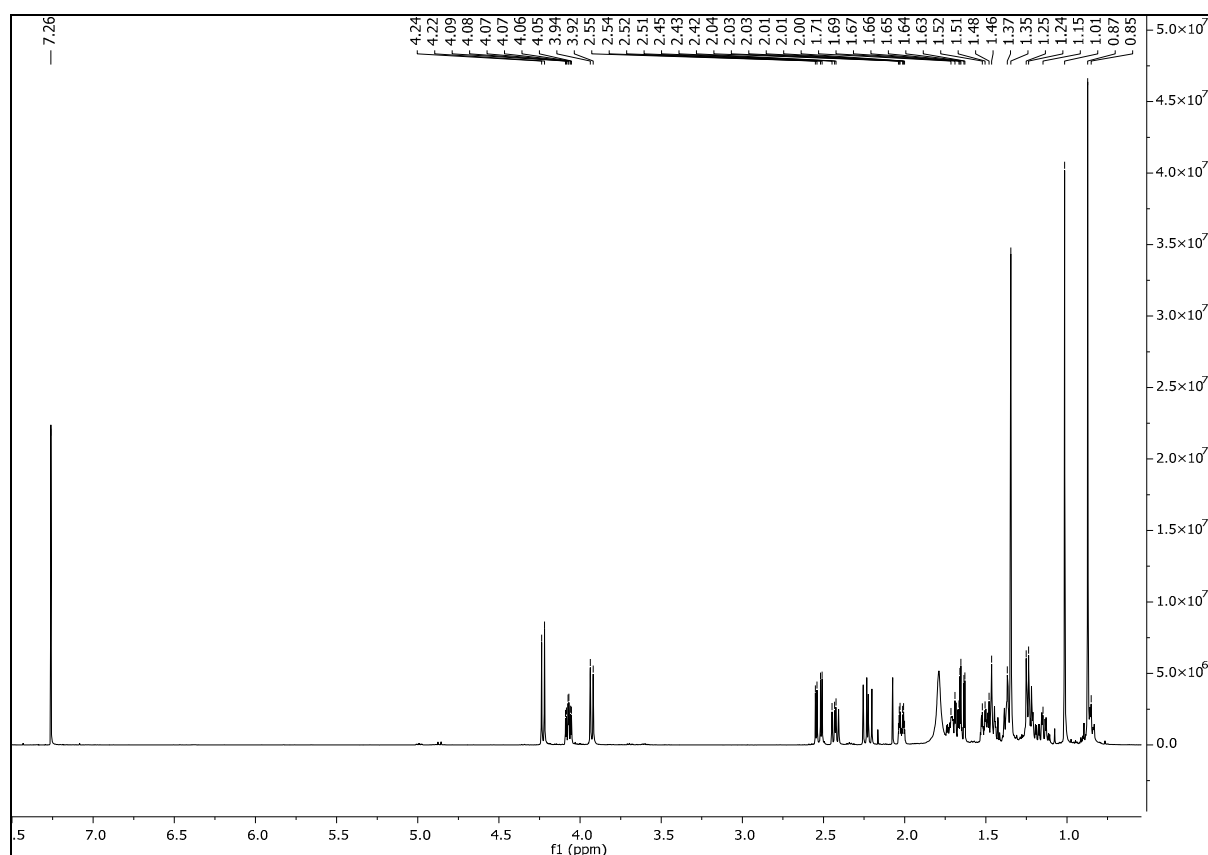
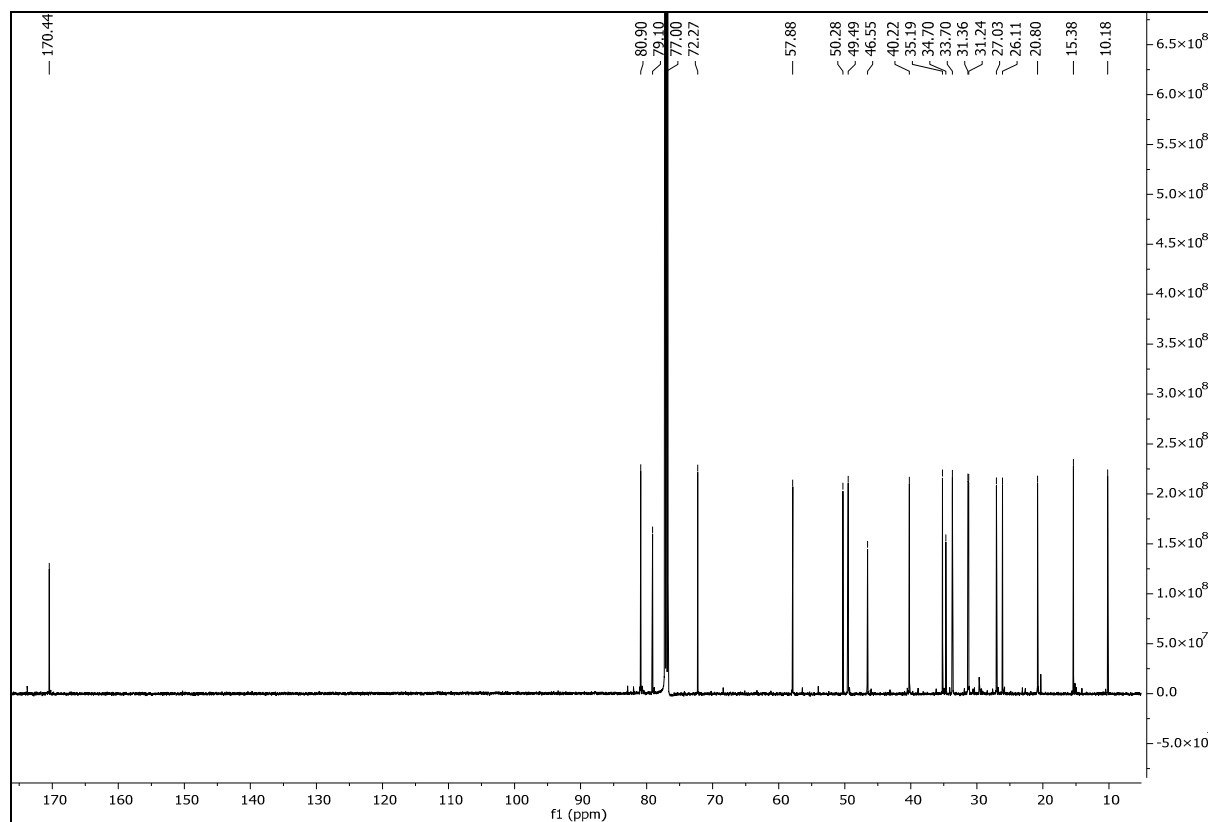
Figure S4. NOESY spectrum of 12β-hydroxyoxandrolone (2).

Figure S5. MS spectrum of 9 $\alpha$ -hydroxyoxandrolone (3).Figure S6.  $^1\text{H}$  NMR spectrum of 9 $\alpha$ -hydroxyoxandrolone (3).

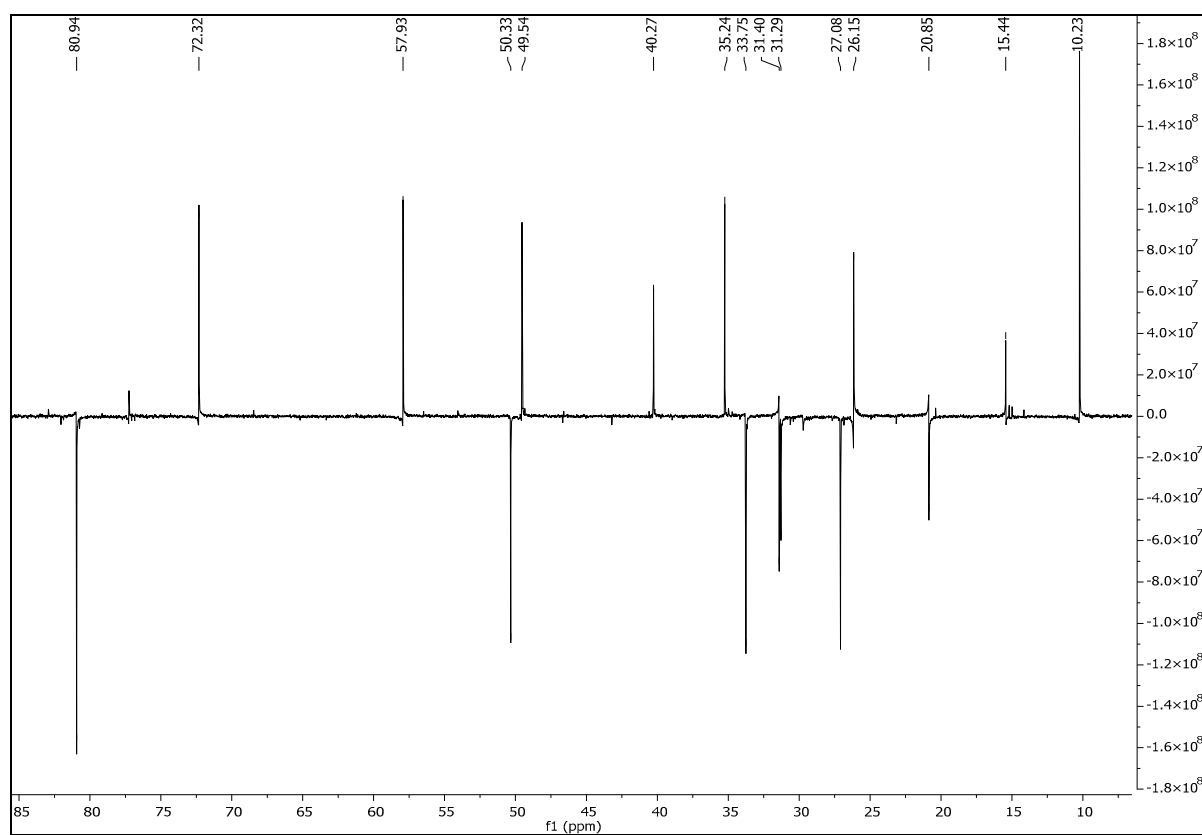
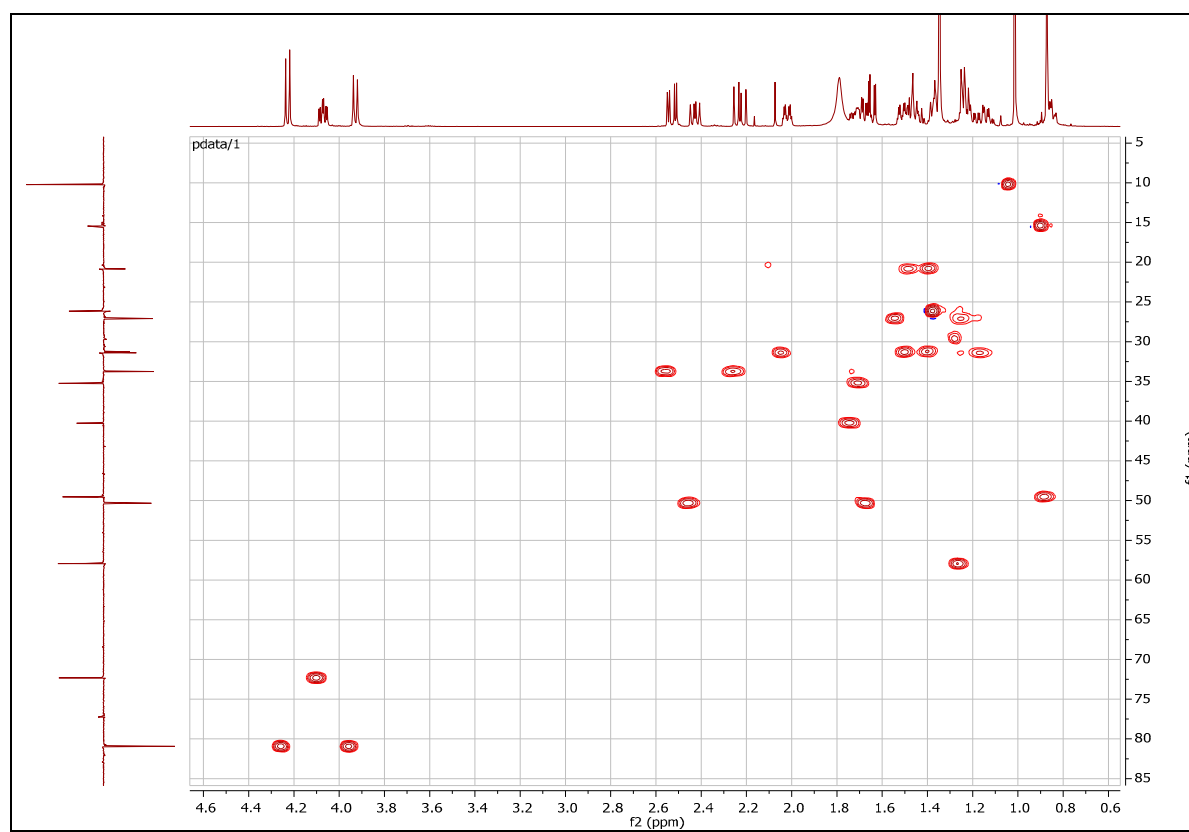
Figure S7. <sup>13</sup>C NMR spectrum of 9 $\alpha$ -hydroxyoxandrolone (3).Figure S8. MS spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).

Figure S9. <sup>1</sup>H NMR spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).Figure S10. <sup>13</sup>C NMR spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).

Figure S11. NOESY spectrum of 6 $\alpha$ -hydroxyoxandrolone (4).Figure S12. MS spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).

Figure S13.  $^1\text{H}$  NMR spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).Figure S14.  $^{13}\text{C}$  NMR spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).



Figure S15. DEPT spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).Figure S16. HSQC spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).

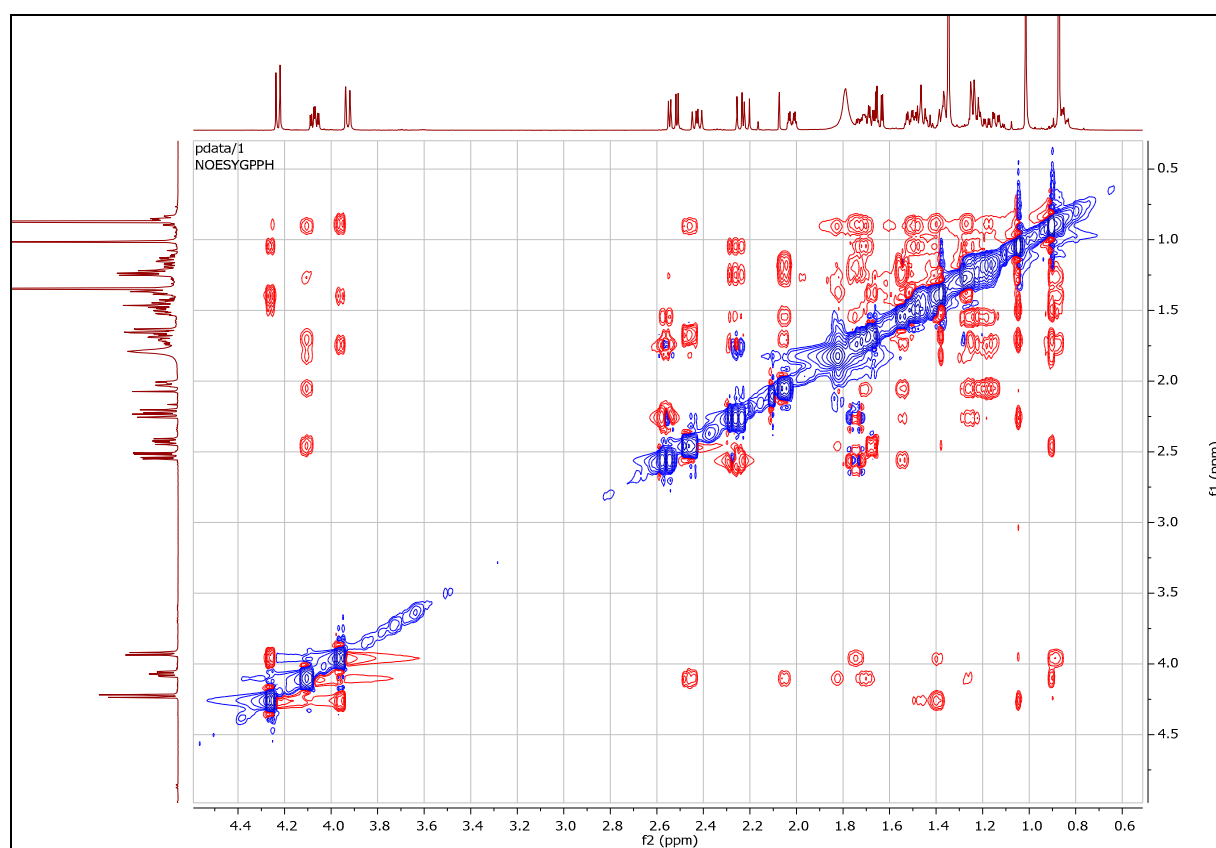


Figure S17. NOESY spectrum of 15 $\alpha$ -hydroxyoxandrolone (5).