

Exploiting the potential of aryl acetamide derived Zn(II) complexes in medicinal chemistry: Synthesis, structural analysis, assessment of biological profile and molecular docking studies

Kishwar Sultana,^{a†} Sumera Zaib,^{b†} Najm ul Hassan Khan,^c Imtiaz Khan,^d Khadija Shahid,^e Jim Simpson^f and Jamshed Iqbal^{b*}

^aFaculty of Pharmacy, The University of Lahore, Lahore, Pakistan

^bCentre for Advanced Drug Research, COMSATS Institute of Information Technology, Abbottabad-22060, Pakistan

^cIslam College of Pharmacy, Pasrur Road, Sialkot, Pakistan

^dDepartment of Chemistry, Quaid-i-Azam University, Islamabad-45320, Pakistan

^eRiphah Institute of Pharmaceutical Sciences, Riphah International University Islamabad-44000 Pakistan

^fDepartment of Chemistry, University of Otago, PO Box 56, Dunedin 9054, New Zealand

[†]These authors contributed equally to this work.

To whom Correspondence should address:

Prof. Dr. Jamshed Iqbal

Centre for Advanced Drug Research, COMSATS Institute of Information Technology,
Abbottabad-22060, Pakistan

Tel.: +92 992 383591/96; Fax: +92 992 383441. E-mail: drjamshed@ciit.net.pk

Table S1. Atomic coordinates ($\times 10^4$) and equivalent isotropic displacement parameters ($\text{\AA}^2 \times 10^3$) for **4c**. $U(\text{eq})$ is defined as one third of the trace of the orthogonalized U^{ij} tensor.

	x	y	z	U(eq)
Zn(1)	5000	11552(1)	1671(1)	20(1)
Cl(1)	5000	11532(1)	-252(1)	31(1)
Cl(2)	5000	13536(1)	2416(1)	30(1)
O(1)	4141(1)	10382(2)	2190(2)	26(1)
O(2)	2999(1)	5294(2)	-55(2)	28(1)
N(1)	3156(1)	9354(2)	3101(2)	24(1)
C(1)	3127(2)	8291(2)	2308(3)	22(1)
C(2)	3803(1)	7592(3)	2071(3)	26(1)
C(3)	3783(2)	6567(2)	1301(3)	25(1)
C(4)	3074(1)	6251(3)	761(3)	22(1)
C(5)	2383(2)	6928(3)	1025(2)	25(1)
C(6)	2413(1)	7952(2)	1797(2)	25(1)
C(7)	3695(2)	11261(3)	4010(3)	29(1)
C(8)	3678(1)	10315(2)	3031(2)	23(1)
C(9)	3700(2)	4593(3)	-376(3)	33(1)

Table S2. Bond lengths [Å] and angles [°] for **4c**.

Zn(1)-O(1)	1.9834(18)	C(3)-C(4)	1.391(4)
Zn(1)-O(1) ⁱ	1.9834(18)	C(3)-H(3)	0.9500
Zn(1)-Cl(1)	2.2212(10)	C(4)-C(5)	1.394(4)
Zn(1)-Cl(2)	2.2263(9)	C(5)-C(6)	1.386(4)
O(1)-C(8)	1.248(3)	C(5)-H(5)	0.9500
O(2)-C(4)	1.373(3)	C(6)-H(6)	0.9500
O(2)-C(9)	1.436(3)	C(7)-C(8)	1.496(4)
N(1)-C(8)	1.332(3)	C(7)-H(7A)	0.9800
N(1)-C(1)	1.432(3)	C(7)-H(7B)	0.9800
N(1)-H(1)	0.791(13)	C(7)-H(7C)	0.9800
C(1)-C(2)	1.381(4)	C(9)-H(9A)	0.9800
C(1)-C(6)	1.388(4)	C(9)-H(9B)	0.9800
C(2)-C(3)	1.385(4)	C(9)-H(9C)	0.9800
C(2)-H(2)	0.9500		
O(1)-Zn(1)-O(1) ⁱ	94.12(11)	C(4)-C(3)-H(3)	120.4
O(1)-Zn(1)-Cl(1)	107.23(6)	O(2)-C(4)-C(3)	123.8(2)
O(1) ⁱ -Zn(1)-Cl(1)	107.23(6)	O(2)-C(4)-C(5)	115.9(2)
O(1)-Zn(1)-Cl(2)	116.52(5)	C(3)-C(4)-C(5)	120.3(2)
O(1) ⁱ -Zn(1)-Cl(2)	116.52(5)	C(6)-C(5)-C(4)	119.7(2)
Cl(1)-Zn(1)-Cl(2)	113.27(4)	C(6)-C(5)-H(5)	120.2
C(8)-O(1)-Zn(1)	136.68(16)	C(4)-C(5)-H(5)	120.2
C(4)-O(2)-C(9)	117.8(2)	C(5)-C(6)-C(1)	119.9(2)
C(8)-N(1)-C(1)	123.9(2)	C(5)-C(6)-H(6)	120.1
C(8)-N(1)-H(1)	111(2)	C(1)-C(6)-H(6)	120.1
C(1)-N(1)-H(1)	125(2)	C(8)-C(7)-H(7A)	109.5
C(2)-C(1)-C(6)	120.2(2)	C(8)-C(7)-H(7B)	109.5
C(2)-C(1)-N(1)	120.0(2)	H(7A)-C(7)-H(7B)	109.5
C(6)-C(1)-N(1)	119.8(2)	C(8)-C(7)-H(7C)	109.5
C(1)-C(2)-C(3)	120.6(2)	H(7A)-C(7)-H(7C)	109.5
C(1)-C(2)-H(2)	119.7	H(7B)-C(7)-H(7C)	109.5
C(3)-C(2)-H(2)	119.7	O(1)-C(8)-N(1)	120.3(2)
C(2)-C(3)-C(4)	119.3(2)	O(1)-C(8)-C(7)	122.6(2)
C(2)-C(3)-H(3)	120.4	N(1)-C(8)-C(7)	117.1(2)

Supporting Information

O(2)-C(9)-H(9A)	109.5	O(2)-C(9)-H(9C)	109.5
O(2)-C(9)-H(9B)	109.5	H(9A)-C(9)-H(9C)	109.5
H(9A)-C(9)-H(9B)	109.5	H(9B)-C(9)-H(9C)	109.5

Symmetry transformations used to generate equivalent atoms: $i = -x+1, y, z$

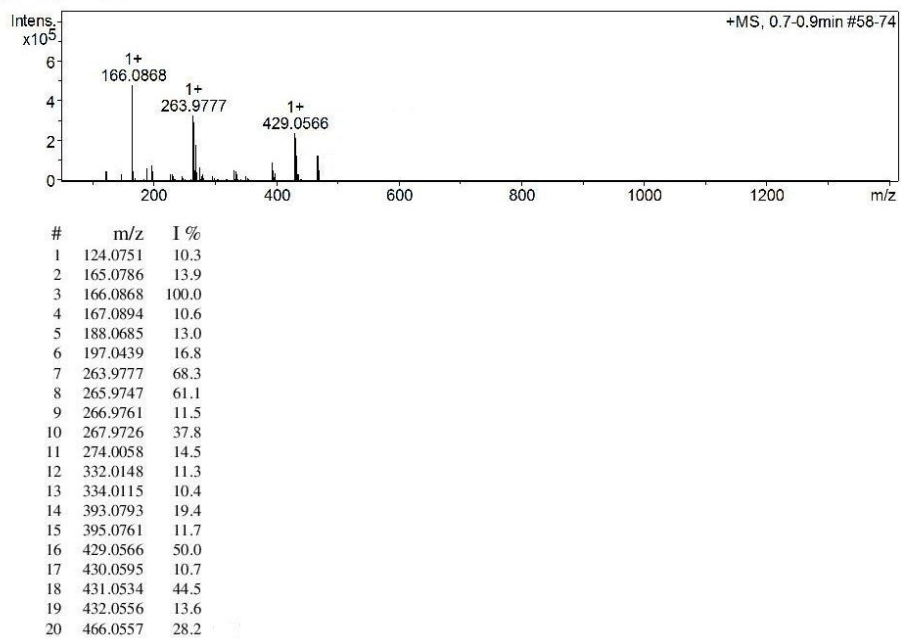


Figure S1. Mass spectrum of complex 4c.

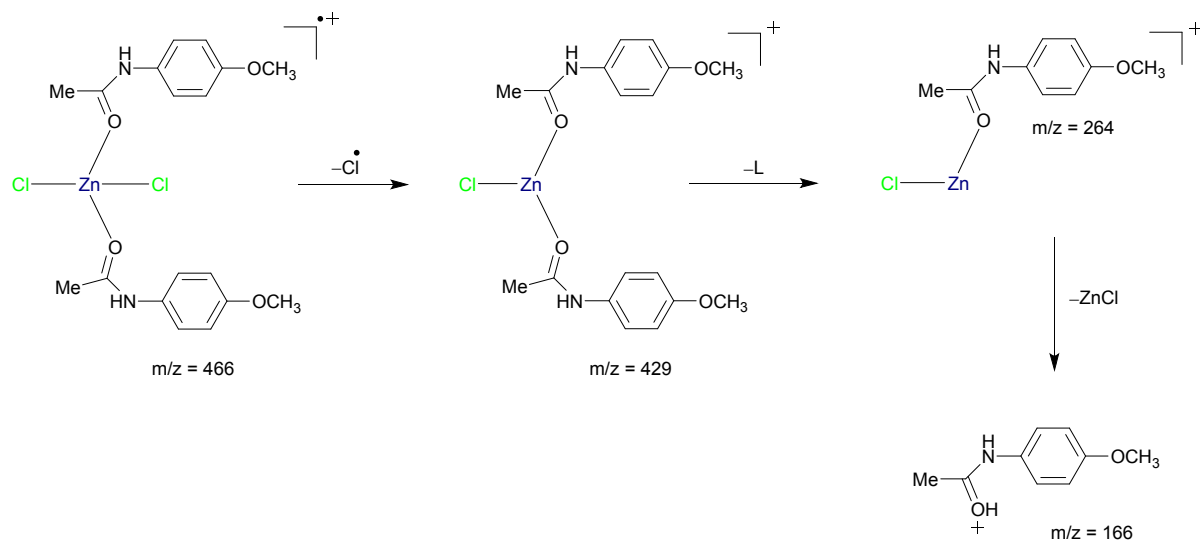


Figure S2. Proposed mass fragmentation pattern for complex 4c.

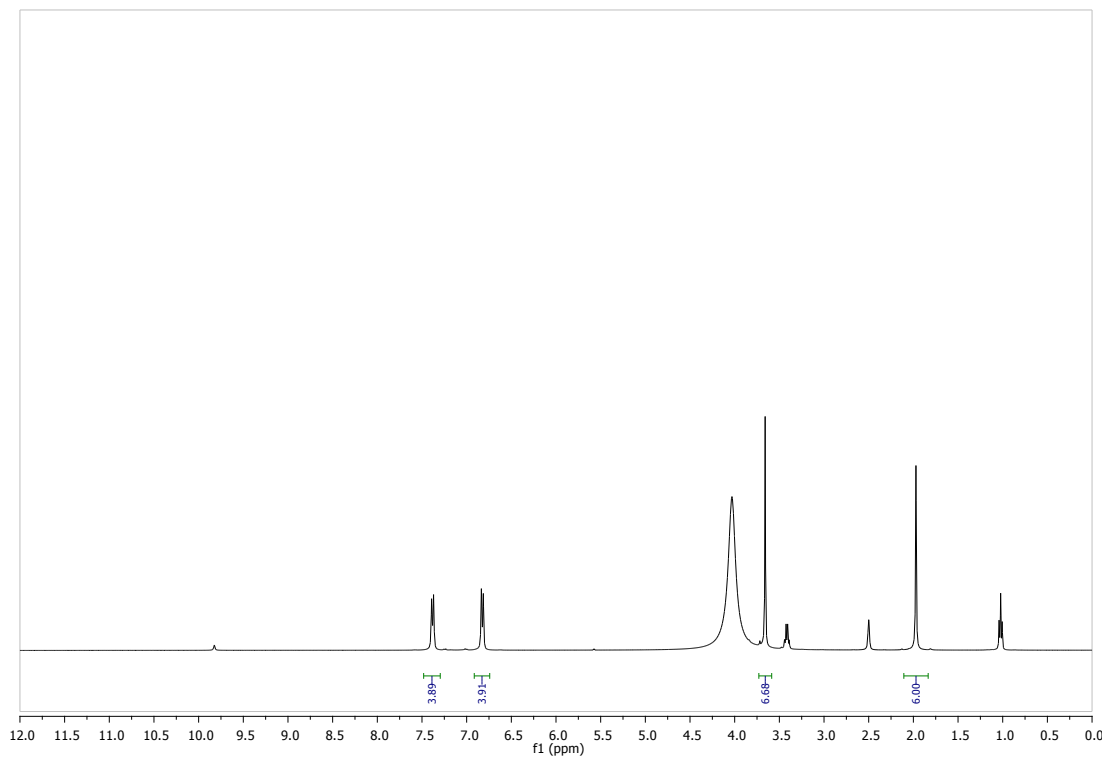


Figure S3. ^1H NMR spectrum of complex **4c** at room temperature (400 MHz, $\text{DMSO-d}_6/\text{D}_2\text{O}$).

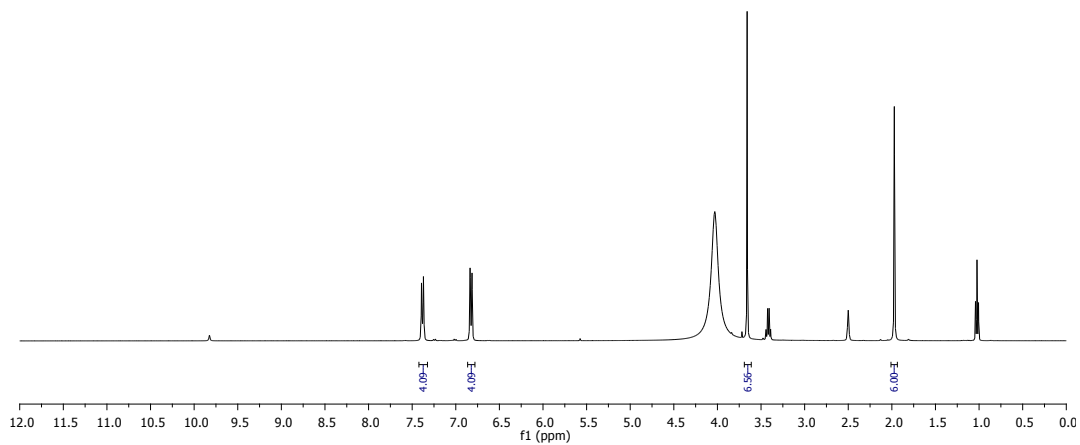


Figure S4. ^1H NMR spectrum of complex **4c** at room temperature after 48 h (400 MHz, $\text{DMSO-d}_6/\text{D}_2\text{O}$).