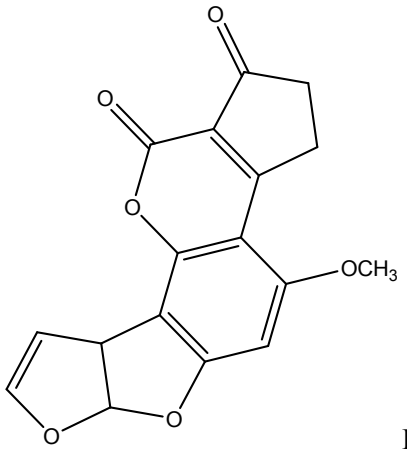
Electronic Supplementary Material (ESI) for Analyst.

A fabricated electro-spun sensor based on Lake Red C pigments doped into PAN (polyacrylonitrile) nano-fibers for electrochemical detection of Aflatoxin B1 in poultry feed and serum samples

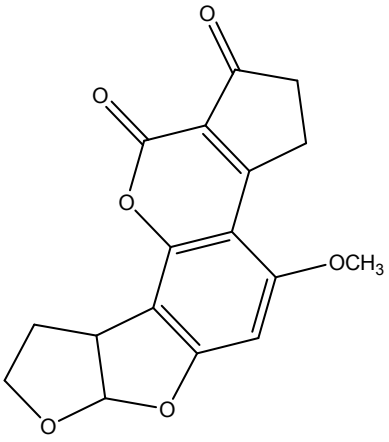
Arash Babakhanian,*[a] Tahereh Momeneh,[a,b] Parviz Aberoomand-azar,[c] Samineh Kaki,[c] Mehran Torki,[b] Seyed Hossein Kiaie,[a] Ehsan Sadeghi[d] and Farzad Dabirian[e]

[a] Department of Chemistry, College of Science, Kermanshah Branch, Islamic Azad University, Kermanshah, Iran
E-mail: arash.babakhanian@gmail.com; Arash.babakhanian@iauksh.ac.ir
Fax: +988337243182-5
Tel: +988337243182-5
[b] Department of Animal Science, Faculty of Agriculture, Razi University, Kermanshah, Iran
[c] Department of Chemistry, Science and Research Branch, Islamic Azad University, Tehran, Iran
[d] Research Center for Environmental Determinants of Health (RCEDH), Kermanshah University of Medical Sciences, Kermanshah, Iran
[e] Department of Mechanical Engineering, Engineering Faculty, Razi University, Kermanshah, Iran

Supplementary Legends



B1



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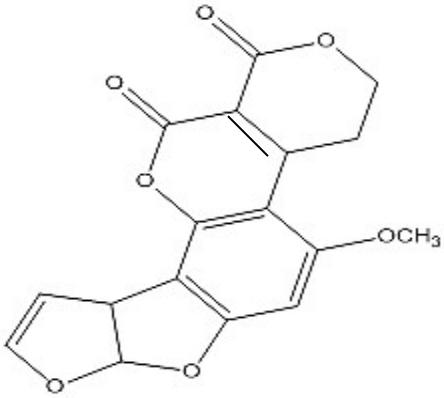

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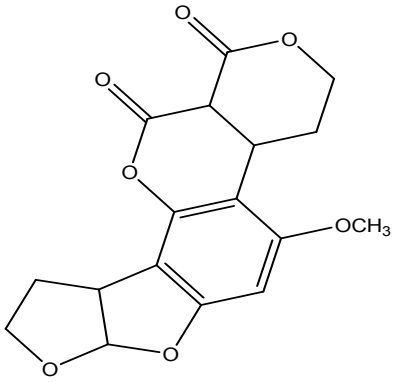

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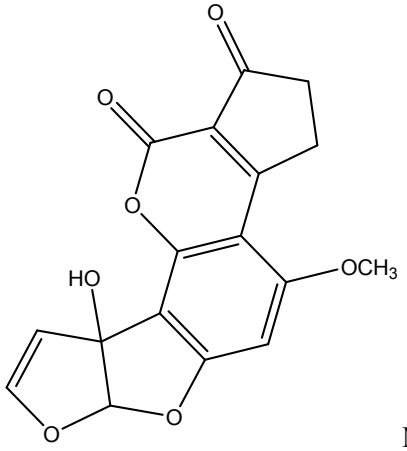
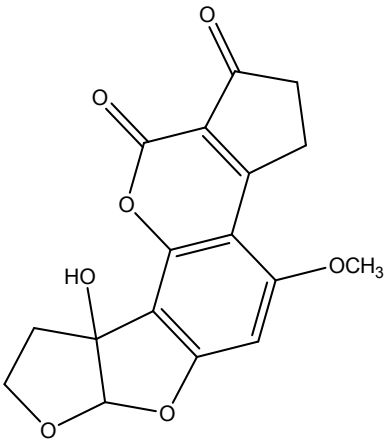


M1



M2

Fig.S1. The structural formula for AFs derivatives such as AFB1, AFB2, AFG1, AFG2, AFM1 and AFM2.

Table S.1. Tolerance limits for some organic and inorganic substances on the response of GC/PAN-LRC nano fiber electrode toward 20 nM of AFB1 (n=5).

Interfering substances	Tolerated ratio [Interference]/[AFB1]	Interfering substances	Tolerated ratio [Interference]/[AFB1]
Zn^{2+}	570±28	Ni^{2+}	870±45
Cu^{2+}	870 ± 46	Mn^{2+}	921±49
Ca^{2+}	645 ± 37	Sr^{2+}	1372±70
K^{+}	855±48	Fe^{3+}	280±15
Cr^{3+}	448±29	Vitamin C	755±38
Fe^{2+}	330±18	Vitamin B_6	666±35
Vitamin E	990±55	Sucrose, Fructose ,Glucose	≥ 1100±57
Tartrate	890±50	Thiourea, urea	≥ 1200±60
D-Arginine	1055±55	Vitamin A	1300±65
AFB2	250 ± 14	AFG1,AFG2,AFM1, AFM2	≥ 270± 15

Table S.2. Determination AFB1 in the poultry feed and serum samples in attendance of the proposed sensor.

Sample	Spiked Value (nM)	Found value by the proposed sensor (nM)	RSD (%)
P.F.S	0	0.782 ± 0.009[a]	1.15
P.F.S	45	47.33±2.77	5.85
P.F.S	75	77.12±2.12	2.74
S.S	0	75.15±0.88[b]	1.17
S.S	60	62.15±2.42	3.89
S.S	95	93.66±1.25	1.33

Poultry Feed Sample (corn sample) =P.F.S.

Serum Samples=S.S.

a ; Actual value found as gr of AFB1 per 100 gr of Corn samples.

b ;Actual value found as μg of AFB1 per 1ml of Poultry blood serum samples.

RSD : Relative standard deviation : %RSD=(Standard deviation/average)*100

Table S3. The comparative study of the analytical features of the electrospun GC/PAN-LRC with several published previous works.

sensor structure	electrochemical technique	linear concentration range	detection limit	reference number
multiwalled carbon nanotubes-supported Au/Pt bimetallic nanoparticles	DPV	1×10^{-10} to 1×10^{-5} mol L^{-1}	0.03 nmol L^{-1}	[21]
polyaniline probe modified with Mc-IgGs-a-AFB1 antibodies	Amperometric	0.20 to 1.30 $ngmL^{-1}$	0.059 $ngmL^{-1}$	[22]
Immune sensor based on polythionine/gold nanoparticles	DPV	0.6 - 2.4 ng/mL	0.07 ng/mL	[26]
aptamer-based biosensor using PAMAM dendrimers as immobilization platform	EIS	0.1-10nM	0.40 nM	[27]
present work (electrospun GC/PAN-LRC)	DPV	40-120 nM	11.62 nM	--------