ANTIOXIDATIVE ACTIVITY AND METAL AND PH SENSING PROPERTIES OF HETEROAROMATIC BENZAMIDES

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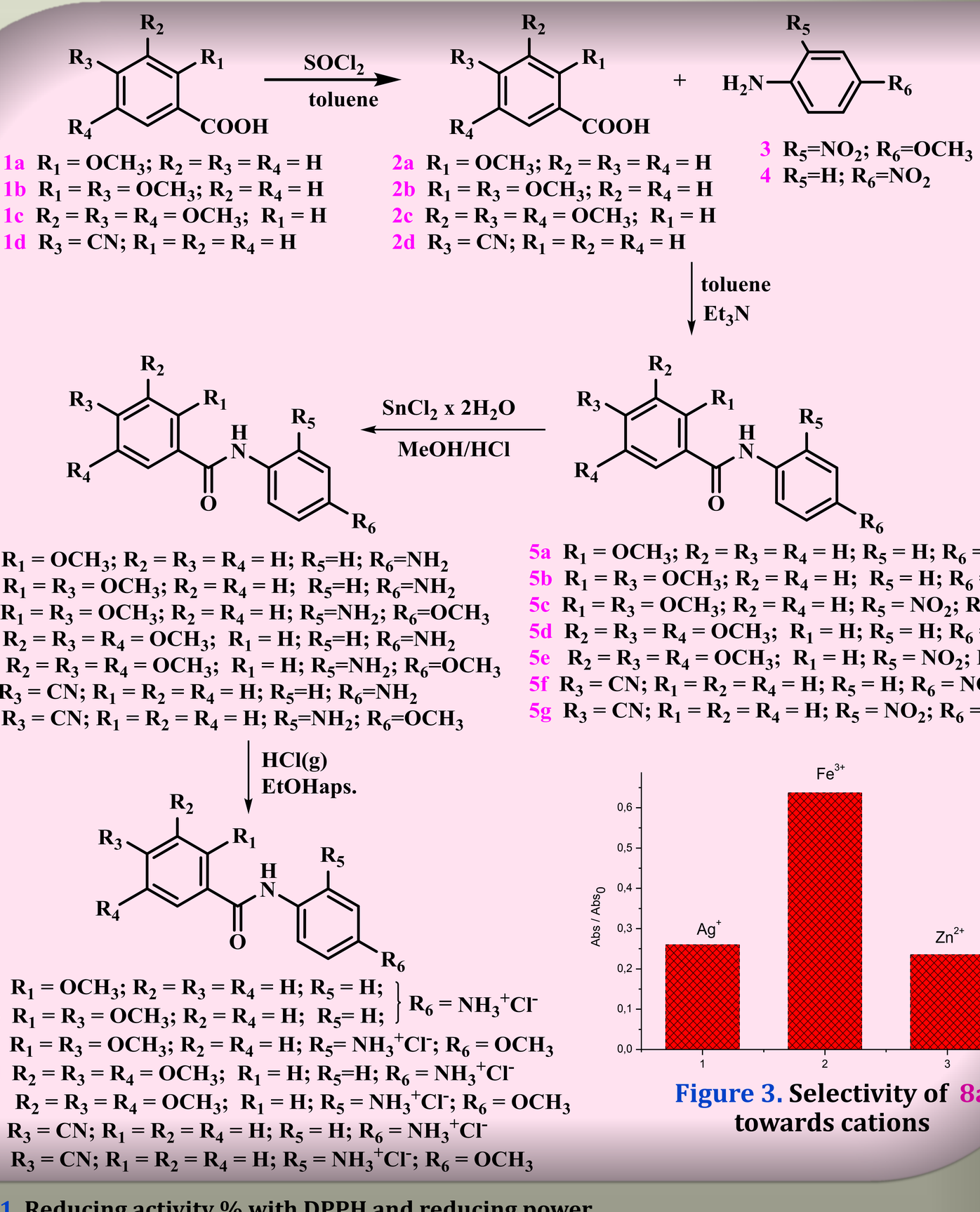
Within this work, we present the synthesis, spectroscopic characterization and antioxidative activity of novel methoxy and/or hydroxy derivatives of amino substituted benzamides.

For the synthesis of novel targeted compounds, classical organic synthesis reactions were used. Amino substituted derivatives were prepared by reduction of nitro analogues while hydroxy substituted benzamide derivatives obtained by the removal of methoxy protecting groups with BBr_3. Structures of newly prepared compounds were confirmed by means of ^1H and ^{13}C NMR, UV/Vis and fluorimetric spectroscopy.



Scheme 1.

Figure 3. Selectivity of 8a towards cations

To explore and confirm the possibility of synthesized derivatives for their application as metal or pH sensors, UV/Vis and fluorimetric titrations of aqueous compounds solutions with metal chloride salts or different buffers were performed.

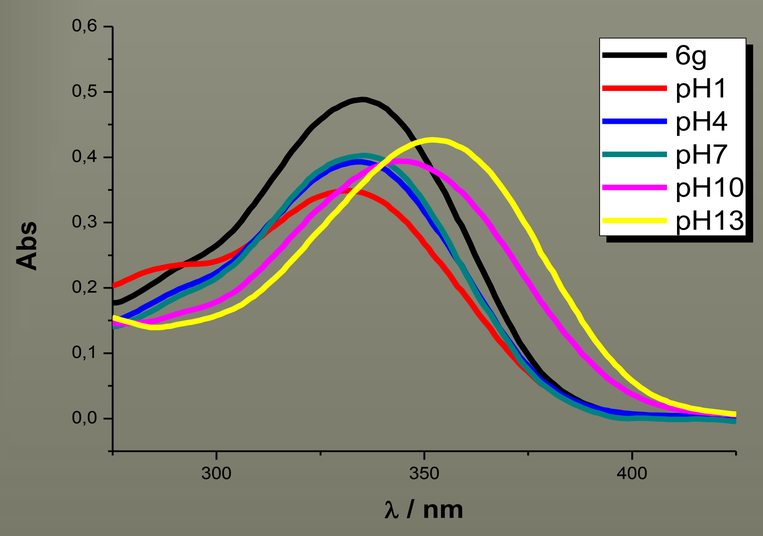


Figure 1. pH titration of compound 6g

Table 1. Reducing activity % with DPPH and reducing power $mmol_{Fe}^{2+}/mmol_c$ using the FRAP assay of tested compounds

Comp.	DPPH/ μM	FRAP$mmolFe^2$ /mmol comp.
7a	30,02±4,1	2307,42±63,87
7b	18,4±3,1	1905,99±87,57
7d	26,56±1,8	1677,96±93,2
7e	30,45±2,1	1763,47±219,52
7f	30,73±8,1	1763,47±32,66
7g	18,12±0,28	989,11±85,02
8a	23,80±0,3	2283,67±62,12
8b	24,0±1,5	1530,69±35,87
8c	16,85±0,1	3259,93±85,51
9a	22,25±0,9	2328,80±118,03
9b	10,81±3,3	2174,40±99,85
9c	12,93±1,9	4856,15±70,18
BHT	25±4.2	2089.34±55.98

The antioxidant properties of chosen compounds were determined by DPPH and FRAP methods.

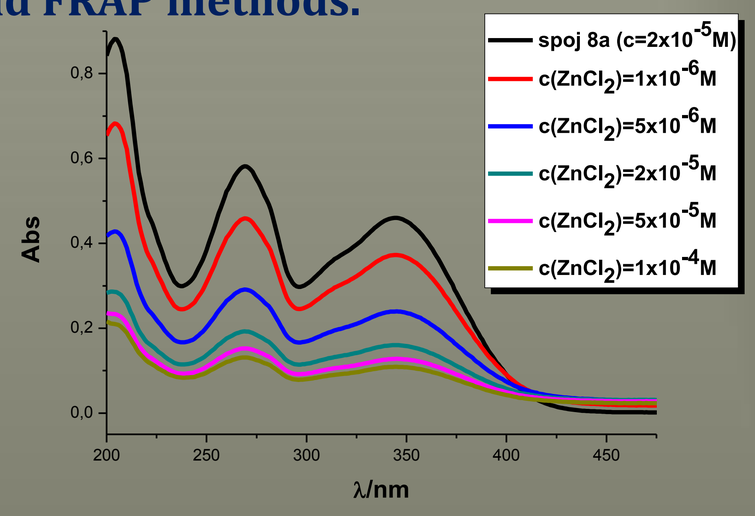


Figure 2. Titration of acqueous solution of compound 8a with $ZnCl_2$solution

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