SYNTHESIS AND ANTIRADICAL ACTIVITY OF HINDERED PHENOL DERIVATIVES OF BENZAZOLE-2-THIONES

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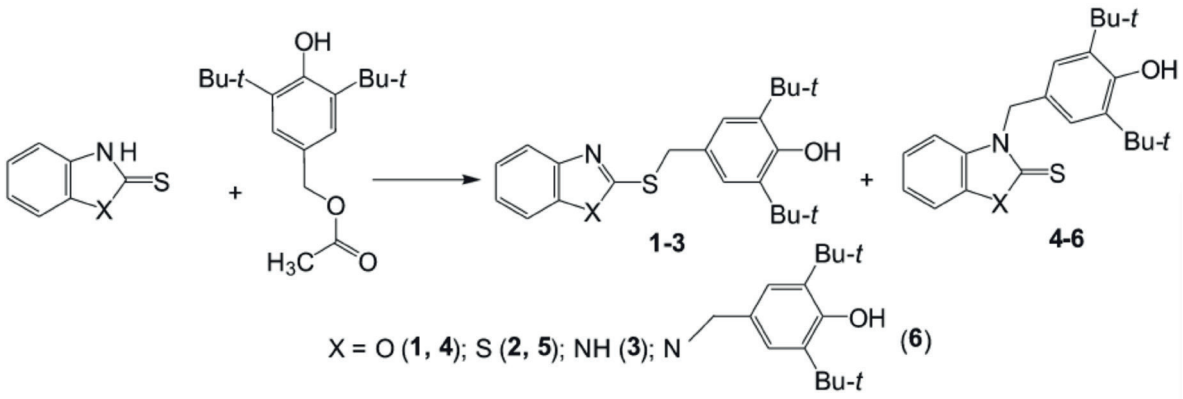
In the present work we determined conditions for the synthesis of S- and N-benzylation products of benzothiazole(oxazole, imidazole)-2-thiones in the reactions of the corresponding benzazole-2-thiones with 3,5-di-tert-butyl-4-hydroxybenzyl acetate. The synthesized derivatives of benzazol-2-thiones (1-6) are interesting as stabilizing additives to polymers and biologically active substances.



It was shown that antiradical activity of S- and N-3,5-di-tert-butyl-4-hydroxybenzyl derivatives of benzothiazole(oxazole, imidazole)-2-thione with respect to 2,2-diphenyl-1-picrylhydrazyl is varies widely. S-Benzyl derivatives exhibit higher reactivity at 30°C.

Table 1. Kinetic parameters of the reactions of substituted benzazole-2-thiones with 2,2-diphenyl-1-picrylhydrazyl in 1,4-dioxane

Соединение	k_2 *at 30°C*, L mol^{-1} s^{-1}	E_a kJ/mol	$\Delta S\neq$, J K^{-1} mol^{-1}
1	0.05625 ± 0.00089	56.7 ± 1.0	-90 ± 3
2	0.164 ± 0.0014	36.4 ± 0.8	-150 ± 3
3	0.032*	50.9 ± 1.6	-114 ± 5
4	0.0158 ± 0.00006	38.5 ± 2.5	-161 ± 8
5	0.0346 ± 0.0005	46.1 ± 0.3	-129 ± 6
6	0.0389 ± 0.0002	34.4 ± 0.4	-167 ± 4

* The value was calculated using the Arrhenius equation.

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