Synthesis and Spectral Properties of 2-methylthio-3*H*-7-[(*o*-; *m*- and *p*-substituted)phenoxy]-4-(*p*-substituted-phenyl)-[1,5]benzodiazepines

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A series of eleven new 2-methylthio-3*H*-7-[(*o*-; *m*- and *p*-substituted) phenoxy]-4-(*p*-substituted-phenyl)-[1,5]benzodiazepines, which have potentially useful pharmacological activities, has been synthesized by condensing the 4-[(*o*-; *m*- and *p*-R_1)phenoxy]-1,2-phenylendiamines with 3,3-dimercapto-1-(*p*-R_2-phenyl)-2-propen-1-one. Afterward the 1*H*-[1,5]benzodiazepine-2-thiones obtained were treated with sodium hydride and methyl iodide. The structure of all products was corroborated by ir, ^{1}H nmr, ^{13}C nmr and ms.

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The benzodiazepines belong to an important class of compounds possessing a wide variety of pharmacological activity [3] such as anxiolytics [4], anticonvulsants [5] and hypnotics [6]. These compounds have been extensively investigated for their wide-ranging effects on the brain and spinal cord. The action mechanism is mediated by the central benzodiazepine receptor a binding site that allosterically modulates chloride channel by $GABA_A$ receptors in the central nervous system [7].

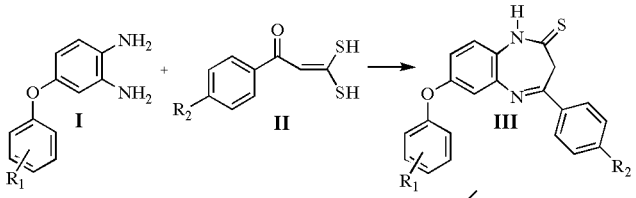
In recent years the benzodiazepines have been used in Alzheimer's disease [8] as well as in inflammatory processes [9]. The use of benzodiazepines in the therapeutic applications has increased exponentially over the last 20 years also these compounds are now the most commonly prescribed group of drugs.

Many papers have been published describing the synthesis of benzodiazepine derivatives. We have previously reported the synthesis of 5-methylthio-4*H*-1-(*p*-substituted-phenyl)-3a-(*p*-substituted-phenyl)-9-[(*m*- and *p*-substituted)-phenoxy]-3a,4-[1,2,4]oxadiazolo[4,5-a][1,5]benzodiazepines [10], 2,3-dihydro-2-[*o*-; and *p*-substituted)anilinylidene]-1*H*-4-(*p*-methylphenyl)-7-[(*o*-; and *p*-methyl)-phenoxy]-1,5-benzodiazepines [11] and 2-methylthio-3*H*-4-(*p*-substituted-phenyl)-7-[(*o*- and *p*-substituted)phenylthio]-1,5-benzodiazepines [12].

In our continuous research program on the synthesis and the spectral property determination of [1,5]benzodiazepines derivatives with possible pharmacological activity, we described in this report the synthesis of the novel compounds 2-methylthio-3*H*-7-[(*o*-; *m*- and *p*-substituted)phenoxy]-4-(*p*-substituted-phenyl)-[1,5]benzodiazepines **IV,1-11** as shown in Scheme 1.

The reaction of compounds **I** with **II**, has been performed in anhydrous *ortho*-xylene at reflux for eight hours. The 1*H*-[1,5]benzodiazepine-2-thiones **III**, have been obtained in 54-77% yield. Treatment of compounds **III**, with sodium hydride and methyl iodide at reflux in *ortho*-xylene for four hours afforded the compounds 2-methylthio-3*H*-7-[(*o*-; *m*- and *p*-substituted)phenoxy]-4-(*p*-substituted-phenyl)-[1,5]benzodiazepines **IV,1-11**, which have been obtained in 83-98%.

Scheme 1



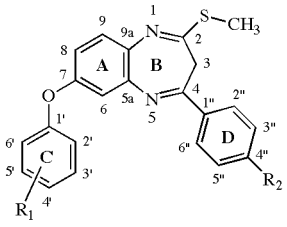
	R_1	R_2
1	H-	CH_3
2	*o*-CH_3	CH_3
3	*m*-CH_3	CH_3
4	*p*-CH_3	CH_3
5	*o*-OCH_3	CH_3
6	*m*-OCH_3	CH_3
7	*p*-OCH_3	CH_3
8	H-	OCH_3
9	*o*-OCH_3	OCH_3
10	*m*-OCH_3	OCH_3
11	*p*-OCH_3	OCH_3

The infrared spectrum of compounds **1-11** displayed absorptions at 1597-1590 cm^{-1} for C=N stretching, at 1317 cm^{-1} for C-S stretching, at 1263-1252 and 1260-1249 cm^{-1} for C-N stretching, at 1192-1163 and 1090-1029 cm^{-1} for C-O stretching and the corresponding absorptions for aromatic and R-substituents.

In the ^{1}H-nmr spectra the presence of three proton signals at δ 2.27-2.45 singlet were assigned to the methyl joined to sulphur (S-CH_3). The presence of one broad proton signal at δ 3.40 was consistent with the methylene protons at C-3. The presence of a three protons multiplet signal at δ 6.92-7.37 was assigned to the aromatic protons at C-6, C-8 and C-9 of the benzodiazepine framework. The other aromatic protons appeared as a multiplet and an AA'BB' system at δ 6.63-8.02 and with the signal for the R-substituents.

The ^{13}C-nmr spectra of compounds **1-11** are given en Table 1. The signals were confirmed by using HETCOR, long range HETCOR, COSY and NOESY nmr experiments operating at 300 and 500 MHz.

Table 1
^{13}C NMR Spectral Data for Compounds **1-11**



IV, (1-11)

Compounds	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
R_1	H	*o*-CH_3	*m*-CH_3	*p*-CH_3	*o*-OCH_3	*m*-OCH_3	*p*-OCH_3	H	*o*-OCH_3	*m*-OCH_3	*p*-OCH_3
R_2	CH_3	CH_3	CH_3	CH_3	CH_3	CH_3	CH_3	OCH_3	OCH_3	OCH_3	OCH_3
C-2	157.1	154.5	155.3	154.6	154.8	155.4	155.1	157.1	155.6	155.4	155.1
C-3	39.4	39.5	39.5	39.4	39.4	39.5	39.5	39.3	39.4	39.4	39.3
C-4	153.8	153.8	154.0	153.7	153.6	153.9	153.8	153.7	153.8	153.2	153.2
C-5a	140.9	140.9	141.0	140.8	140.8	140.9	140.9	141.0	141.0	141.1	141.0
C-6	116.9	115.0	116.9	116.2	114.8	117.1	115.4	116.8	115.0	117.0	115.3
C-7	153.7	154.8	154.0	154.3	151.5	153.5	150.1	153.3	151.2	153.4	150.1
C-8	116.9	115.8	117.1	116.5	115.7	117.2	116.1	116.7	115.6	117.2	115.9
C-9	129.0	129.0	129.0	128.9	128.8	129.0	129.0	129.0	129.0	129.0	129.0
C-9a	136.6	136.2	136.6	136.3	136.1	136.7	136.1	136.5	136.4	136.7	136.0
C-1'	155.3	154.4	157.2	155.0	154.6	158.4	154.9	155.2	154.3	158.5	154.9
C-2'	119.0	130.1	116.2	119.2	154.8	105.1	121.0	119.0	155.3	105.0	121.0
C-3'	129.7	131.5	129.5	130.2	121.4	160.9	114.9	129.7	121.4	161.0	114.9
C-4'	123.3	124.1	119.8	132.9	121.1	109.0	156.0	123.2	121.1	109.0	156.0
C-5'	129.7	127.2	129.3	130.2	124.9	130.1	114.9	129.7	124.9	130.1	114.9
C-6'	119.0	120.1	124.2	119.2	112.9	111.2	121.0	119.0	112.9	111.2	121.0
C-1"	134.1	134.2	134.2	134.1	134.2	134.2	134.2	136.5	136.8	129.5	129.6
C-2"; C-6"	128.0	128.0	128.1	128.0	128.0	128.1	128.0	129.8	129.9	129.9	129.9
C-3"; C-5"	129.3	129.3	129.4	129.2	129.3	129.4	129.3	113.9	114.0	114.0	114.0
C-4"	141.2	141.2	141.3	141.1	141.1	141.3	141.2	161.8	161.8	161.9	161.8
S-CH_3	13.7	13.8	13.8	13.7	13.7	13.8	13.8	13.7	13.8	13.8	13.8
R_1	--	16.2	21.4	20.6	55.9	55.3	55.6	--	56.0	55.4	55.6
R_2	21.3	21.4	21.4	21.3	21.3	21.4	21.4	55.3	55.4	55.4	55.4

Note: The numbering of the phenyl ring is only for the assignment of the chemical shifts of the carbon in ^{13}C nmr spectra.

The mass spectra of compounds **1-11** include ions with m/z corresponding to the molecular ion $[M]^+$ as the base peak, $[M-15]^+$, $[M-33]^+$, $[M-47]^+$, $[M-61]^+$, $[M-72]^+$, $[217+R_2]^+$, $[102+R_2]^+$ and $[76+R_2]^+$. The mass spectra of the compounds exhibit a stable molecular ion and the main fragmentation was consistent with the assigned structures. The proposed fragmentation pathways leading to the formation of number of important daughter ions have been confirmed for the corresponding parent ion spectra by collision-induced dissociation experiments. The elemental composition of the molecular ion and the principal fragment ion was determined by exact mass measurements.

EXPERIMENTAL

The ir spectra were recorded on a Nicolet Magna TR-750 spectrophotometer. The ^{1}H-nmr spectra were recorded on a Varian Unity 300 spectrometer operating at 300 MHz and the ^{13}C-nmr spectra were recorded on a Varian Unity 500 spectrometer operating at 125 MHz in deuteriochloroform solution containing tetramethylsilane as the internal standard with chemical shifts δ (ppm) expressed downfield from tetramethylsilane. The mass spectra were measured on a JEOL JMS-AX505 and JEOL MS-SX 102A high-resolution mass spectrometer with accurate mass determination of the molecular ion and the principal fragment ions, using the direct inlet system. The spectra were recorded by electron impact at an ionization chamber temperature of 190º and ionizing electron energy of 70 eV.

Compounds **I** and **II** were prepared following literature methods with modifications [13].

General Procedure for the Synthesis of the 2,3-Dihydro-4-[(*p*-R_2)phenyl]-7-[(*o-; m-* and *p*-R_1)phenoxy]-1*H*-[1,5]benzodiazepine-2-thiones **III**.

A mixture of 0.01 mole of 4-[(*o*-; *m*- and *p*-R_1)phenoxy]-1,2-phenylendiamines **I,** 0.01 mole of 3,3-dimercapto-1-[(*p*-R_2)phenyl]-2-propen-1-one **II**, in 150 ml of dry *ortho*-xylene was heat at reflux for eight hours. After cooling, the crystals were collected and washed with hexane to yield the 1*H*-[1,5]benzodiazepine-2-thiones **III**, with 54-77% yield.

General Procedure for the Synthesis of the 2-Methylthio-3*H*-7-[(*o*-; *m*- and *p*-substituted)phenoxy]-4-(*p*-substituted-phenyl)-[1,5]benzodiazepines **IV,1-11**.

A mixture of 0.007 mole of 2,3-Dihydro-4-[(*p*-R_2)phenyl]-7-[(*o*-; *m*- and *p*-R_1)phenoxy]-1*H*-[1,5]benzodiazepine-2-thiones **III**, 0.021 mole of sodium hydride in 100 ml of dry *ortho*-xylene was heat at reflux for one hour. After the reaction mixture was cooled at room temperature, 0.021 mole of methyl iodide was subsequently added dropwise over a few minutes and the reflux was continued for four additional hours. The reaction mixture was cooled to room temperature, filtered and the organic solution was dried with sodium sulphate, filtered and evaporated *in vacuo* to yield a semisolid; the compounds **IV**, with 83-98% yield.

4-(*p*-Methylphenyl)-2-methylthio-3*H*-7-phenoxy-[1,5]benzodiazepine (**1**).

This compound was obtained as orange semisolid in 98% yield; ir (chloroform): ν C=N 1592, CH_3-S 1317, C-N 1261 and 1240, C-O 1186 and 1090 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.40 (s, 3H, $C_{4''}$-CH_3), 2.45 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 6.97 (dd, 1H, J = 2.7, 8.7 Hz, 8-H), 7.07 (d, 1H, J = 3.3 Hz, 6-H), 7.08 (dd, 1H, J = 1.8, 7.2 Hz, 2'-H), 7.08 (dd, 1H, J = 1.8, 7.2 Hz, 6'-H), 7.11 (dt, 1H, J = 0.9, 7.4 Hz, 4'-H), 7.26 and 7.94 (AA'BB', 4H, J = 8.1 Hz, phenyl protons of "D" ring), 7.34 (dd, 1H, J = 1.8, 7.5 Hz, 3'-H), 7.34 (dd, 1H, J = 1.8, 7.5 Hz, 5'-H), 7.37 (d, 1H, J = 9.0 Hz, 9-H); ms: m/z 372 $(M)^+$, 374 $[M+2]^+$.

Anal. Calcd. for: $C_{23}H_{20}N_2OS$: C, 74.16; H, 5.41; N, 7.52. Found: C, 74.22; H, 5.50; N, 7.41.

7-(*o*-Methylphenoxy)-4-(*p*-methylphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**2**).

This compound was obtained as orange semisolid in 91% yield; ir (chloroform): ν C=N 1593, CH_3-S 1317, C-N 1256 and 1236, C-O 1183 and 1082 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.27 (s, 3H, $C_{2'}$-CH_3), 2.40 (s, 3H, $C_{4''}$-CH_3), 2.45 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 6.92 (dd, 1H, J = 2.7, 7.2 Hz, 8-H), 6.93 (d, 1H, J = 3.0 Hz, 6-H), 6.99 (dd, 1H, J = 1.5, 8.1 Hz, 6'-H), 7.08 (dd, 1H, J = 1.6, 8.1 Hz, 3'-H), 7.08 (dt, 1H, J = 1.5, 7.5 Hz, 4'-H), 7.18 (dt, 1H, J = 2.1, 8.1 Hz, 5'-H), 7.25 and 7.93 (AA'BB', 4H, J = 8.7 Hz, phenyl protons of "D" ring), 7.35 (d, 1H, J = 9.3 Hz, 9-H); ms: m/z 386 $(M)^+$, 388 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2OS$: C, 74.58; H, 5.73; N, 7.25. Found: C, 74.45; H, 5.80; N, 7.35.

7-(*m*-Methylphenoxy)-4-(*p*-methylphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**3**).

This compound was obtained as orange semisolid in 89% yield; ir (chloroform): ν C=N 1599, CH_3-S 1313, C-N 1257 and 1240, C-O 1186 and 1080 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.33 (s, 3H, $C_{3'}$-CH_3), 2.39 (s, 3H, $C_{4''}$-CH_3), 2.45 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 6.90 (d, 1H, J = 2.0, Hz, 2'-H), 6.90 (dd, 1H, J = 1.8, 8.4 Hz, 4'-H), 6.93 (dd, 1H, J = 1.9, 8.1 Hz, 6'-H), 6.96 (dd, 1H, J= 2.5, 8.5 Hz, 8-H), 7.06 (d, 1H, J = 3.0 Hz, 6-H), 7.25 (t, 1H, J= 9.0 Hz, 5'-H), 7.26 and 7.94 (AA'BB', 4H, J = 8.0 Hz, phenyl protons of "D" ring), 7.37 (d, 1H, J = 8.5 Hz, 9-H); ms: m/z 386 $(M)^+$, 388 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2OS$: C, 74.58; H, 5.73; N, 7.25. Found: C, 74.66; H, 5.82; N, 8.32.

7-(*p*-Methylphenoxy)-4-(*p*-methylphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**4**).

This compound was obtained as orange semisolid in 94% yield; ir (chloroform): ν C=N 1596, CH_3-S 1317, C-N 1261 and 1238, C-O 1192 and 1083 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.33 (s, 3H, $C_{4'}$-CH_3), 2.39 (s, 3H, $C_{4''}$-CH_3), 2.44 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 6.94 (dd, 1H, J = 1.5, 8.7 Hz, 8-H), 6.97 and 7.14 (AA'BB', 4H, J = 8.4 Hz, phenyl protons of "C" ring), 7.02 (d, 1H, J = 2.7 Hz, 6-H), 7.25 and 7.93 (AA'BB', 4H, J = 8.1 Hz, phenyl protons of "D" ring), 7.35 (d, 1H, J = 8.7 Hz, 9-H); ms: m/z 386 $(M)^+$, 388 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2OS$: C, 74.58; H, 5.73; N, 7.25. Found: C, 74.68; H, 5.64; N, 7.31.

7-(*o*-Methoxyphenoxy)-4-(*p*-methylphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**5**).

This compound was obtained as orange semisolid in 95% yield; ir (chloroform): ν C=N 1591, CH_3-S 1315, C-N 1262 and 1254, C-O 1182 and 1041 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.39 (s, 3H, $C_{4''}$-CH_3), 2.44 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 3.84 (s, 3H, $C_{2'}$-OCH_3), 6.92 (dd, 1H, J = 1.8, 7.8 Hz, 8-H), 6.98 (d, 1H, J = 2.7 Hz, 6-H), 7.04 (dd, 1H, J = 1.8, 8.7 Hz, 6'-H), 7.09 (dd, 1H, J = 1.5, 7.2 Hz, 3'-H), 7.11 (dt, 1H, J = 1.5, 7.3 Hz, 4'-H), 7.14 (dt, 1H, J = 1.8, 7.2 Hz, 5'-H), 7.24 and 7.92 (AA'BB', 4H, J = 8.4 Hz, phenyl protons of "D" ring), 7.34 (d, 1H, J = 9.3 Hz, 9-H); ms: m/z 402 $(M)^+$, 404 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2O_2S$: C, 71.61; H, 5.51; N, 6.96. Found: C, 71.50; H, 5.62 ; N, 6.91.

7-(*m*-Methoxyphenoxy)-4-(*p*-methylphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**6**).

This compound was obtained as orange semisolid in 83% yield; ir (chloroform): ν C=N 1590, CH_3-S 1315, C-N 1263 and 1260, C-O 1178 and 1042 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.40 (s, 3H, $C_{4''}$-CH_3), 2.45 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 3.78 (s, 3H, $C_{3'}$-OCH_3), 6.64 (d, 1H, J = 2.1 Hz, 2'-H), 6.64 (dd, 1H, J = 1.8, 8.4 Hz, 4'-H), 6.67 (dd, 1H, J = 1.8, 8.4 Hz, 6'-H), 6.97 (dd, 1H, J = 2.7, 8.7 Hz, 8-H), 7.09 (d, 1H, J = 2.4 Hz, 6-H), 7.23 (t, 1H, J = 8.1 Hz, 5'-H), 7.26 and 7.95 (AA'BB', 4H, J = 8.4 Hz, phenyl protons of "D" ring), 7.37 (d, 1H, J = 9.0 Hz, 9-H); ms: m/z 402 $(M)^+$, 404 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2O_2S$: C, 71.61; H, 5.51; N, 6.96. Found: C, 71.72; H, 5.45; N, 6.88.

7-(*p*-Methoxyphenoxy)-4-(*p*-methylphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**7**).

This compound was obtained as orange semisolid in 94% yield; ir (chloroform): ν C=N 1597, CH_3-S 1317, C-N 1258 and 1250, C-O 1175 and 1037 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.39 (s, 3H, $C_{4''}$-CH_3), 2.44 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 3.80 (s, 3H, $C_{4'}$-OCH_3), 6.89 and 7.04 (AA'BB', 4H, J = 9.0 Hz, phenyl protons of "C" ring), 6.93 (dd, 1H, J = 2.7, 9.0 Hz, 8-H), 6.97 (d, 1H, J = 2.1 Hz, 6-H), 7.25 and 7.93 (AA'BB', 4H, J = 8.4 Hz, phenyl protons of "D" ring), 7.34 (d, 1H, J = 9.0 Hz, 9-H); ms: m/z 402 $(M)^+$, 404 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2O_2S$: C, 71.61; H, 5.51; N, 6.96. Found: C, 71.56; H, 5.61; N, 7.03.

4-(*p*-Methoxyphenyl)-2-methylthio-3*H*-7-phenoxy-[1,5]benzodiazepine (**8**).

This compound was obtained as orange semisolid in 87% yield; ir (chloroform): ν C=N 1590, CH_3-S 1316, C-N 1254 and

1250, C-O 1177 and 1029 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.45 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 3.85 (s, 3H, $C_{4''}$-OCH_3), 6.96 (dd, 1H, J = 2.7, 8.7 Hz, 8-H), 6.96 and 7.99 (AA'BB', 4H, J = 9.0 Hz, phenyl protons of "D" ring), 7.06 (d, 1H, J = 2.7 Hz, 6-H), 7.07 (dd, 1H, J = 2.5, 8.4 Hz, 2'-H), 7.07 (dd, 1H, J = 2.5, 8.4 Hz, 6'-H), 7.12 (dt, 1H, J = 1.8, 7.5 Hz, 4'-H), 7.35 (dt, 1H, J = 0.9, 7.5 Hz, 3'-H), 7.35 (dt, 1H, J = 0.9, 7.5 Hz, 5'-H), 7.37 (d, 1H, J = 8.7 Hz, 9-H); ms: m/z 388 $(M)^+$, 400 $[M+2]^+$.

Anal. Calcd. for: $C_{23}H_{20}N_2O_2S$: C, 71.10; H, 5.19; N, 7.21. Found: C, 71.19; H, 5.26; N, 7.13.

7-(*o*-Methoxyphenoxy)-4-(*p*-methoxyphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**9**).

This compound was obtained as orange semisolid in 93% yield; ir (chloroform): ν C=N 1592, CH_3-S 1317, C-N 1255 and 1250, C-O 1170 and 1035 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.45 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 3.85 (s, 3H, $C_{2'}$-OCH_3), 3.86 (s, 3H, $C_{4''}$-OCH_3), 6.95 (dd, 1H, J = 1.8, 8.1 Hz, 8-H), 6.96 and 8.00 (AA'BB', 4H, J = 9.0 Hz, phenyl protons of "D" ring), 7.01 (dd, 1H, J = 1.5, 8.1 Hz, 6'-H), 7.02 (d, 1H, J = 2.7 Hz, 6-H), 7.06 (dd, 1H, J = 1.5, 7.4 Hz, 3'-H), 7.06 (dt, 1H, J = 1.5, 7.4 Hz, 4'-H), 7.15 (dt, 1H, J = 1.6, 7.2 Hz, 5'-H), 7.35 (d, 1H, J = 8.5 Hz, 9-H); ms: m/z 418 $(M)^+$, 420 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2O_3S$: C, 68.87; H, 5.30; N, 6.69. Found: C, 68.80; H, 5.21; N, 6.79.

7-(*m*-Methoxyphenoxy)-4-(*p*-methoxyphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**10**).

This compound was obtained as orange semisolid in 97% yield; ir (chloroform): ν C=N 1595, CH_3-S 1317, C-N 1252 and 1250, C-O 1163 and 1035 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.45 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 3.77 (s, 3H, $C_{3'}$-OCH_3), 3.85 (s, 3H, $C_{4''}$-OCH_3), 6.63 (d, 1H, J = 1.5 Hz, 2'-H), 6.63 (dd, 1H, J = 1.5, 7.4 Hz, 4'-H), 6.67 (dd, 1H, J = 0.9, 6.8 Hz, 6'-H), 6.95 and 8.02 (AA'BB', 4H, J = 9.0 Hz, phenyl protons of "D" ring), 6.96 (dd, 1H, J = 2.7, 8.7 Hz, 8-H), 7.08 (d, 1H, J = 2.7 Hz, 6-H), 7.22 (t, 1H, J = 8.1 Hz, 5'-H), 7.37 (d, 1H, J = 8.7 Hz, 9-H); ms: m/z 418 $(M)^+$, 420 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2O_3S$: C, 68.87; H, 5.30; N, 6.69. Found: C, 68.98; H, 5.22; N, 6.60.

7-(*p*-Methoxyphenoxy)-4-(*p*-methoxyphenyl)-2-methylthio-3*H*-[1,5]benzodiazepine (**11**).

This compound was obtained as orange semisolid in 91% yield; ir (chloroform): ν C=N 1595, CH_3-S 1317, C-N 1255 and 1249, C-O 1178 and 1033 cm^{-1}; ^1H nmr (deuteriochloroform): δ 2.44 (s, 3H, S-CH_3), 3.40 (bs, 2H, 3-H), 3.80 (s, 3H, $C_{4'}$-OCH_3), 3.84 (s, 3H, $C_{4''}$-OCH_3), 6.88 and 7.04 (AA'BB', 4H, J = 9.0 Hz, phenyl protons of "C" ring), 6.92 (dd, 1H, J = 2.7, 8.7 Hz, 8-H), 6.95 and 7.99 (AA'BB', 4H, J = 9.0 Hz, phenyl protons of "D" ring), 6.96 (d, 1H, J = 2.4 Hz, 6-H), 7.34 (d, 1H, J = 8.1 Hz, 9-H); ms: m/z 418 $(M)^+$, 420 $[M+2]^+$.

Anal. Calcd. for: $C_{24}H_{22}N_2O_3S$: C, 68.87; H, 5.30; N, 6.69. Found: C, 68.78; H, 5.37; N, 6.77.

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