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RAGAB EI-SAYED

*Chemistry Department, Faculty of Science, Al -Azhar University, Cairo, Egypt.*

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**NOVEL IMIDES AMINO ACIDS AND DIPEPTIDE DERIVATIVES**

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RAGAB A. EL-SAYED

*Chemistry Department, Faculty of Science, Al-Azhar University, Nasr City, Cairo, Egypt*

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**Abstract**

Some novel imides derivatives condensed with different amino acids using **THF-Et<sub>3</sub>N** method, afforded an excellent yield of compounds **3-8**, **20-23b**, **32-35b**. some of these compounds react with **CH<sub>3</sub>OH-SOCl<sub>2</sub>** mixture to give corresponding methyl esters **9-11**, **24-25**, **36-37** Hydrazinolysis of some methyl esters give hydrazides **12-14**, **26-27** some dipeptides derivatives **15-17**, **28-29**, **38-40** were prepared using Dicyclohexylcarbodiimide **DCC** method, some spectra data were briefly discussed.

**Key Words:** Amino acid and Dipeptide Derivatives of: N-Phenylmaleimide, N-phenylsuccinimide and N-Phenylcamphorimide

**Introduction And Discussion**

The work reported here is a continuation of our general program on the chemistry and reactivity of aryl sulfonyl derivatives as candidate pesticides, which are found to possess hypoglycemic, antipyretic, analgesic diuretic, bacteriostatic, and other pharmacological activities.<sup>(1-14c)</sup>

Sulfonamides are well-established antibacterial agents<sup>(15)</sup>, and several are also fungicidal<sup>(16)</sup>, several cyclic imides display antifungal properties, probably associated with their ability to acylate enzymes by nucleophilic ring-opening<sup>(17)</sup>.

Previous workers<sup>(18-19)</sup> have demonstrated that N-arylmaleimides are fungicidal against a wide spectrum of phytopathogenic fungi and damping of diseases. In addition. Sulfonyl derivatives have well established antibacterial<sup>(20)</sup> and antifungal properties<sup>(21)</sup>.

We decided to synthesis some sulfonylmaleimamide amino acid and dipeptide derivatives as candidate fungicides.

Compound **18** by heating with chlorosulfanic acid (6 mol. equivalent) at 80°C give an excellent yield of N-(P-Chlorosulfonylphenyl) succinimide **19**<sup>(22-23)</sup>.

In succinimides (**20-29**) the bands appeared at approximately 1780 and 1720  $\text{cm}^{-1}$ , whereas in the camphorimide derivatives (**32-40**), the carbonyl bands were at slightly lower frequency 1740 and 1700  $\text{cm}^{-1}$ .

PMR spectra were especially valuable in structural elucidation and aromatic protons resonated as singlet indicating that all the aromatic protons are magnetically equivalent, and gave the correct aliphatic and aromatic protons, while the mass spectra **23b** showed the molecular ion ( $M^+$  : **310**), and fragment ions (**238**, **174**) corresponding to successive loss of the diethylamino and sulfonyl group.

Spectroscopy was therefore of special importance in confirming the structures. The IR spectra of succinimide compounds showed the normal stretching absorption bands associated with NH, C = O,  $\text{SO}_2$ , and amino acid residue. Mass spectra show the molecular ions ( $M^+$ ), and extensive fragmentation was observed in agreement with Various results obtained with the analogous amino acid derivatives.

Compounds **20-23b** were obtained by reaction of **19** with the appropriate amino acids or amines at room temperature using THF- $\text{Et}_3\text{N}$  method.

The relative difficulty in forming six membered ring imides is well known<sup>(24a)</sup>.

Cyclization of camphoric acid with aniline gave N-phenylcamphorimide comp **30**<sup>(24a)</sup>, SCHEME 3.

Camphoric acid with acetyl chloride and aniline gave the amic acid, which by refluxing with acetyl chloride, in glacial acetic acid afforded N-phenyl camphorimide (84%) yield.

The excellent yield is due to the presence of gem dimethyl bridge bond which holds the two reactions sites in a favourable conformation for cyclisation.

The imide **30**, by heating with chlorosulfonic acid gave sulfonyl chloride **31** (55%) yied<sup>(24a)</sup>, which underwent subsequent condensation with amino acids affording amino acid derivatives **32-40**.

The IR spectrum of the imides showed two absorption bands corresponding to the symmetric and antisymmetric stretching vibrations of the carbonyl group<sup>(25-26)</sup>.

Camphor is known<sup>(27-29)</sup>, to form different sulfonic acids depending on the reagents used. Acetyl sulfonate yields the 10-sulfonic acid, the chlorosulfonic acid or fuming sulfuric acid yields the 8-sulfonic acid and methyl chlorosulfonate followed by hydrolysis yields the 3-sulfonic acid.

The 10-acid has been confirmed by X-ray crystallography<sup>(30-31)</sup>. The 8-acid has been studied both by X-ray crystallography<sup>(32)</sup> and by two dimensional NMR<sup>(33)</sup>, both techniques indicate that sulfonation occurs on the gem-methyl group remote from the carbonyl group. The formation of the 8-and 10-acids is considered<sup>(34-35)</sup> to involve **Wagener and Nemetkin rearrangements**.

N-Phenylmaleimide was obtained in good yield (77%) by reaction of maleic anhydride with aniline and subsequent dehydration with acetic anhydride-sodium acetate as previously described<sup>(35)</sup>. Refluxing maleic anhydride and aniline in glacial acetic acid gave a very poor yield (10%) of N-phenylmaleimide together with acetanilide and N-Phenylmaleamic acid in agreement with other workers<sup>(37a)</sup>.  
SCHEME 1.

N-phenylmaleimide react with chlorosulfonic acid (6-mol) to give sulfonyl chloride as cream Powder **2**<sup>(37b)</sup>.

Compound **2** react with amino acid and amines at room temperature using THF-Et<sub>3</sub>N medium.

The IR spectra of maleimide amino acid derivatives showed two carbonyl absorptions (1780, 1730cm<sup>-1</sup>) and indicating that the imide ring was present.

N-phenylsuccinimide **18** was prepared as previously described<sup>(24a)</sup>, by reaction of succinic anhydride with aniline and dehydration with acetic anhydride – sod. acetate<sup>(24b)</sup> SCHEME 2.

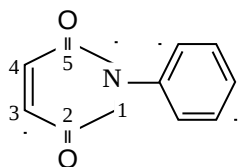
Attempts to obtain **18** by boiling succinic anhydride and aniline in glacial acetic acid were unsuccessful, although the procedure worked well for the synthesis of N-phenylphthalimide<sup>(38c)</sup>.

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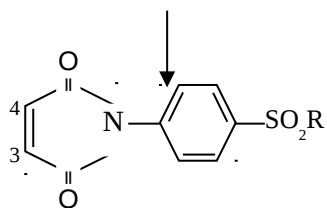
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SCHEME 1

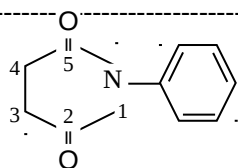


Comp (1)

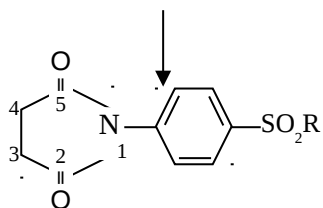


\* Comp (2) , R = Cl

\* Comp (3-17) , R = amino acid residue

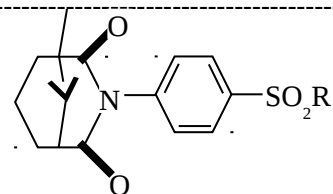


Comp (18)



\* Comp (19) , R = Cl

\* Comp (20-29) , R = amino acid residue



Comp (30) N-Phenyl campharimide

\* Comp (31) , R = Cl

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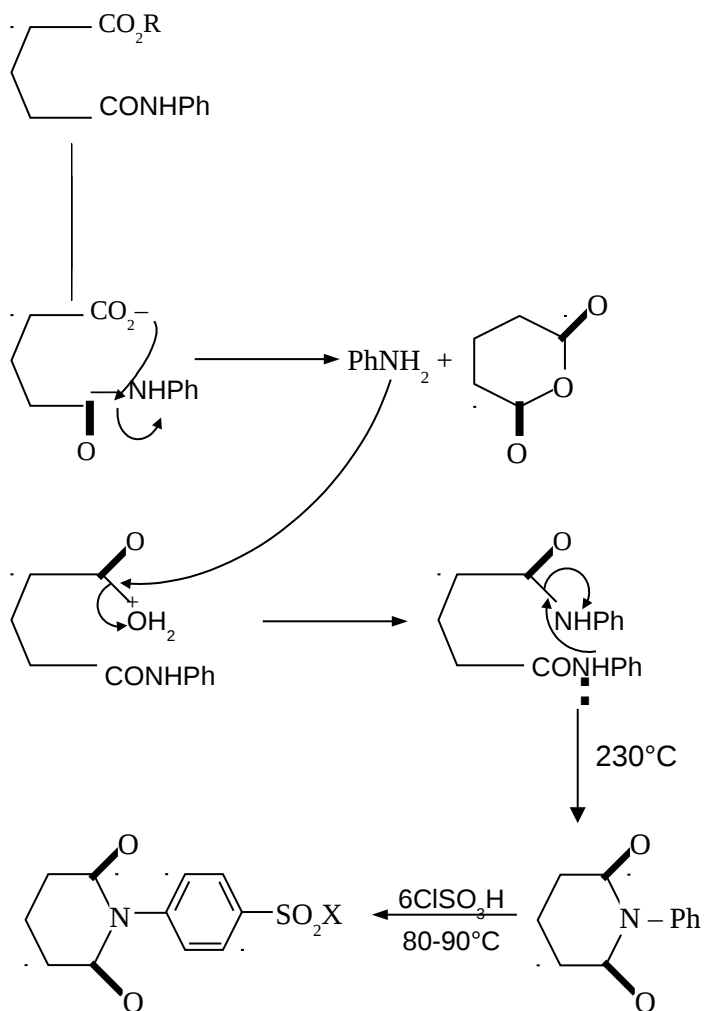
\* Comp (32-40), R = amino acid residue

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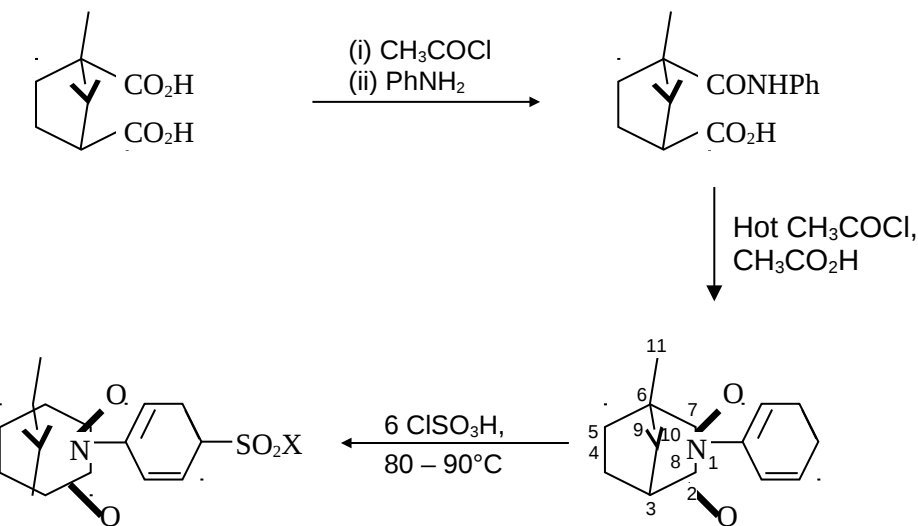
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SCHEME 2



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SCHEME 3



### Experimental

Melting points were taken on a Griffin melting point apparatus and are uncorrected, Infrared of solid samples were run as KBr disc on a Shimadzu model 440 spectrophotometer,  $^1\text{H-NMR}$  spectra were measured in  $\text{DMSO-d}_6$  as solvent unless otherwise stated using Fx 90 Q Fourier Transform  $^1\text{H-NMR}$ . Mass spectra were obtained using a Shimadzu GC. M.S. QP 1000 Ex spectrometer using the direct inlet system. TLC analyses were carried out on Merck silica gel plates and developed with n-butanol acetic acid-water (4:1:1) using iodine, ninhydrin, and benzidine as spraying agents.

Compounds **2**, **19**, **31** were prepared according to the procedure described earlier<sup>(37b, 27a, 22, 23)</sup>.

### Coupling Reactions (3-8), (20-23b) and (32-35)

#### General procedure:

To an amino acid (0.1 mol) in a water (25 ml) THF (15 ml) mixture, was added triethylamine (5 ml), followed by protonwise addition of sulfonyl chloride (0.1 mol) during 30 min. The temperature of the reaction mixture during the process of



addition was kept at 10°C. Stirring continued for 4 hr at 20°C. Tetrahydrofuran was removed by concentration of the reaction mixture under reduced pressure, water (50ml) was added and acidified with 2M HCl to pH<sub>5</sub>. The crude products were filtered and recrystallized (ethanol - water). All the products **(3-8)**, **(20-23b)** and **(32-35)**, were chromatographically homogeneous by iodine and benzidine development of **SCHEME (1,2,3)**. **TABLE 1**.

**IR of 8** :  $\nu$  1780, 1720  $\text{cm}^{-1}$  (C = O),  $\nu$  1600 $\text{cm}^{-1}$  (ArC = C),  $\nu$  1340, 1160  $\text{cm}^{-1}$  (SO<sub>2</sub>). **IR of 22** :  $\nu$  3360, 3280 $\text{cm}^{-1}$  (NH),  $\nu$  1780, 1710  $\text{cm}^{-1}$  (C = O),  $\nu$  1600  $\text{cm}^{-1}$  Ar(C = C),  $\nu$  1340, 1160 $\text{cm}^{-1}$  (SO<sub>2</sub>). **IR of 23b**:  $\nu$  1780, 1720  $\text{cm}^{-1}$  (C = O),  $\nu$  1605  $\text{cm}^{-1}$  Ar(C = C),  $\nu$  1345, 1165  $\text{cm}^{-1}$  (SO<sub>2</sub>). **IR of 35b** :  $\nu$  1745, 1700  $\text{cm}^{-1}$  (C = O),  $\nu$  1600  $\text{cm}^{-1}$  Ar(C = C),  $\nu$  1340, 1160  $\text{cm}^{-1}$  (SO<sub>2</sub>). **<sup>1</sup>H-NMR of 23b**: (DMSO - d<sub>6</sub>):  $\delta$  8.0 - 7.2 (s, 4H, Ar - H),  $\delta$  3.4 - 3.1 (s, 4H, 2N - CH<sub>2</sub>),  $\delta$  2.92 (s, 4H, 2 - CH<sub>2</sub>O),  $\delta$  1.3 - 1.1 (s, 6H, 2CH<sub>3</sub>). **MS of 23b**: m/z 310 (M<sup>+</sup>) 238 (M - NEt<sub>2</sub>), 174 (M - SO<sub>2</sub> Net<sub>2</sub>), 118 (C<sub>6</sub>H<sub>4</sub>NCO), 56 (CH<sub>2</sub> - CH<sub>2</sub> - CO), 28 (CO). **<sup>1</sup>H-NMR of 20** : (DMSO - d<sub>6</sub>):  $\delta$  1.6 [s, 6H, (CH<sub>3</sub>)<sub>2</sub>], 1.91 (s, H,  $\beta$  CH valyl),  $\delta$  4.31 (s, H,  $\alpha$  CH Valyl),  $\delta$  2.9 (s, 4H, 2CH<sub>2</sub>O),  $\delta$  8.0 - 7.0 (s, 4H, ArH),  $\delta$  8.6 (s, H, SO<sub>2</sub>NH),  $\delta$  11.1 (s, H, COOH). **<sup>1</sup>H-NMR of 8** : (DMSO - d<sub>6</sub>):  $\delta$  8.00 - 7.20 (s, 4H, Ar - H),  $\delta$  6.90 (s, 2H, CH = CH),  $\delta$  3.40 - 3.15 (s, 4H, 2N CH<sub>2</sub>),  $\delta$  1.30 - 1.00 (s, 6H, 2N CH<sub>2</sub> CH<sub>3</sub>). **MS of 8**: m/z 308(M<sup>+</sup>) 293 (M - Me), 236 (M - NEt<sub>2</sub>), 172 (M - SO<sub>2</sub> NEt<sub>2</sub>), 144, 118 (C<sub>6</sub>H<sub>4</sub>NCO). **<sup>1</sup>H-NMR of 35b** : (DMSO - d<sub>6</sub>):  $\delta$  7.90 - 7.25 (s, 4H, Ar - H),  $\delta$  2.9-2.8 (s, H, CH, C<sub>3</sub>),  $\delta$  2.70 (s, 6H, 2CH<sub>3</sub>)  $\delta$  2.22 - 2.20 (s, 4H, 2CH<sub>2</sub>, C<sub>4</sub>, C<sub>5</sub>),  $\delta$  1.30 (s, 3H, CH<sub>3</sub>, C<sub>11</sub>),  $\delta$  1.2 - 1.1 (s, 6H, 2CH<sub>3</sub>)

### Synthesis of sulfanilylamino acid methyl esters (9-11), (24-25) and (36-37)

#### General procedure

A suspension of coupling reaction products **(9-11)**, **24**, **25**, **36**, **37** (0.2 mole) in absolute methanol (100 ml) was cooled to - 10°C and pure thionyl chloride (2.2 ml) was added dropwise during one hour. The reaction mixture was stirred for an additional 3-4 h at room temperature. Kept overnight and the solvent was removed by vacuum distillation. The residual solid material was recrystallized (methanol-water). (**Table 1**).

**IR of 9** :  $\nu$  1760, 1720  $\text{cm}^{-1}$  (C = O),  $\nu$  1730,  $\text{cm}^{-1}$  ( $\text{COOCH}_3$ ) **IR of 36** :  $\nu$  3400  $\text{cm}^{-1}$  (NH),  $\nu$  1750  $\text{cm}^{-1}$  ( $\text{COOCH}_3$ ),  **$^1\text{H-NMR of 10}$** : (DMSO –  $\text{d}_6$ ):  $\delta$  3.75 (3H,  $\text{COOCH}_3$ ) and disappear of OH protons.

### **Synthesis of sulfanilylamion acid hydrazides (12-14), (26-27), General procedure**

The methyl esters **(12-14) and (26-27)** (0.2 mol) were dissolved in ethanol (100 ml) and hydrazine hydrate 85% (0.2 mol) was added. The reaction mixture was stirred for 3h at 20°C and left 24 h at room temperature. The crystalline products **(12-14) and (26-27)** were filtered off, washed with water and recrystallized (ethanol-water).

The hydrazides **(12-14) and (26-27)** were shown to be chromatographically to be homogeneous (Table 1).

**IR of 13** :  $\nu$  3430, 3300  $\text{cm}^{-1}$  (NH,  $\text{NH}_2$ ),  $\nu$  1550  $\text{cm}^{-1}$  (CONH),  $\nu$  3300, 1160  $\text{cm}^{-1}$  ( $\text{SO}_2\text{NH}$ ).  **$^1\text{H-NMR of 27}$** : (DMSO –  $\text{d}_6$ ):  $\delta$  9 (1H,  $\text{SO}_2\text{NH}$ )  $\delta$ : 5.50 (H.NH),  $\delta$  5.60 (2H,  $\text{NH}_2$ )

### **Synthesis of sulfanilyl dipeptide methyl esters (15-17),(28-29) and (38-40) General procedure**

To a solution of amino acid methyl ester hydrochloride (0.11 mol) in **THF** (100 ml) was added triethylamine (5 ml), the solution was stirred at 20°C for 30 min. and cooled to 0°C, where the sulfanilyl amino acid (0.005 mol), and **dicyclohexylcarbodiimide DCC** (1.62 g) were added to the above mixture. The reaction mixture was stirred for 2 h at 0°C and for another 2 h at room temperature. The precipitated dicyclohexylurea was filtered off, acetic acid (2 ml), was added to the solution and left standing overnight. The precipitated was filtered off and the remaining solution was distilled under vacuum. The remaining solid was recrystallized from (ethanol-water). The products were to be chromatographically homogeneous.

**IR of 16** :  $\nu$  3300, 3100  $\text{cm}^{-1}$  (NH, CONH),  $\nu$  1750  $\text{cm}^{-1}$  (C = O),  $\nu$  1320  $\text{cm}^{-1}$  ( $\text{COOCH}_3$ ).  **$^1\text{H-NMR of 38}$** : (DMSO –  $\text{d}_6$ ):  $\delta$  3.5 3H, ( $\text{COOCH}_3$ )  $\delta$  9.2 (1H, CONH) and other bands supporting the structure of dipeptide. **MS of 16** :  $m/z$  423 ( $\text{M}^+$ ), **MS of 28** :  $m/z$  425 ( $\text{M}^+$ )

TABLE (1): Physical Data for Various Imido Amino Acid Derivatives (3-17), (20-29) and (32-40).

Comp No.	R	m.p. °C	Yield %	R <sub>f</sub>	Molecular formula	Elemental Analysis calculated / found			
						%C	%H	%N	%S
3	Gly	195-97	60	0.94	C <sub>12</sub> H <sub>10</sub> N <sub>2</sub> O <sub>6</sub> S	46.45	3.23	9.03	10.32
						46.44	3.21	9.01	10.30
4	DL-Ala	172-74	65	0.56	C <sub>13</sub> H <sub>12</sub> N <sub>2</sub> O <sub>6</sub> S	48.15	3.70	8.64	9.88
						48.13	3.68	8.61	9.86
5	L-Val	181-83	63	0.79	C <sub>15</sub> H <sub>16</sub> N <sub>2</sub> O <sub>6</sub> S	51.44	4.55	7.95	9.09
						51.11	4.53	7.93	9.06
6	L-Leu	137-39	66	0.78	C <sub>16</sub> H <sub>18</sub> N <sub>2</sub> O <sub>6</sub> S	52.64	4.92	7.65	8.74
						52.61	4.90	7.62	8.71
7	L-Ph-Ala	165-67	58	0.71	C <sub>19</sub> H <sub>16</sub> N <sub>2</sub> O <sub>6</sub> S	57.00	4.00	7.00	8.00
						56.98	3.97	6.96	7.97
8	N-Et <sub>2</sub>	199-20	80	0.60	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub> S	54.53	5.19	9.09	10.39
						54.51	5.11	9.05	10.36
9	DL-Ala-OMe	225-27	78	0.64	C <sub>14</sub> H <sub>14</sub> N <sub>2</sub> O <sub>4</sub> S	49.70	4.14	8.28	9.47
						49.66	4.11	8.26	9.43
10	L-Val-OMe	200-02	80	0.86	C <sub>16</sub> H <sub>18</sub> N <sub>2</sub> O <sub>6</sub> S	52.46	4.92	7.65	8.74
						52.43	4.90	7.63	8.71
11	L-Leu-OMe	210-12	82	0.82	C <sub>17</sub> H <sub>20</sub> N <sub>2</sub> O <sub>6</sub> S	53.68	5.26	7.37	8.42
						53.66	5.21	7.33	8.40
12	DL-Ala-N <sub>2</sub> H <sub>3</sub>	140-42	71	0.48	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub> O <sub>6</sub> S	46.15	4.14	16.57	9.47
						46.10	4.10	16.53	9.47
13	L-Val-N <sub>2</sub> H <sub>3</sub>	164-66	68	0.44	C <sub>15</sub> H <sub>18</sub> N <sub>4</sub> O <sub>5</sub> S	49.18	4.92	15.30	8.74
						49.15	4.90	15.26	8.71
14	L-leu-N <sub>2</sub> H <sub>3</sub>	232-34	73	0.62	C <sub>16</sub> H <sub>20</sub> N <sub>4</sub> O <sub>5</sub> S	50.53	5.26	14.74	8.42
						50.50	5.23	14.71	8.40
15	Gly-Gly-OMe	290-92	63	0.65	C <sub>15</sub> H <sub>15</sub> N <sub>3</sub> O <sub>7</sub> S	47.24	3.94	11.02	8.40
						47.21	3.91	11.00	8.38
16	L-Val-Gly-OMe	193-92	88	0.50	C <sub>18</sub> H <sub>21</sub> N <sub>3</sub> O <sub>7</sub> S	51.06	4.96	9.93	7.56
						51.03	4.94	9.91	7.53
17	L-leu-Gly-OMe	200-02	77	0.76	C <sub>19</sub> H <sub>23</sub> N <sub>3</sub> O <sub>7</sub> S	52.17	5.26	9.61	7.32
						52.13	5.23	9.58	7.30
20	L-Val	168-70	71	0.83	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub> O <sub>6</sub> S	50.85	5.08	7.91	9.04
						50.81	5.04	7.90	9.01
21	L-leu	154-56	68	0.74	C <sub>16</sub> H <sub>20</sub> N <sub>2</sub> O <sub>6</sub> S	52.17	5.43	7.61	8.69
						52.10	5.40	7.59	8.66
22	NH.NH <sub>2</sub>	163-65	70	0.88	C <sub>10</sub> H <sub>11</sub> N <sub>3</sub> O <sub>4</sub> S	44.61	4.09	15.61	11.89
						44.50	4.05	15.58	11.86
23a	NH   N=C.(CH <sub>3</sub> ) <sub>2</sub>	188-90	75	0.75	C <sub>13</sub> H <sub>15</sub> N <sub>3</sub> O <sub>4</sub> S	50.49	5.85	13.59	10.36
						50.46	5.83	13.56	10.33
23b	N.Et <sub>2</sub>	250-52	72	0.88	C <sub>14</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> S	54.19	5.81	9.03	10.32
						54.11	5.80	9.00	10.30
24	L-Val-OMe	216-18	74	0.77	C <sub>10</sub> H <sub>20</sub> N <sub>2</sub> O <sub>6</sub> S	52.17	5.43	7.61	8.69
						52.10	5.41	7.59	8.66
25	L-leu-OMe	234-36	78	0.79	C <sub>17</sub> H <sub>22</sub> N <sub>2</sub> O <sub>6</sub> S	53.10	5.76	7.33	8.38
						53.00	5.73	7.31	8.35

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26	<b>L-Val-N<sub>2</sub>H<sub>3</sub></b>	104-06	79	0.69	C <sub>15</sub> H <sub>20</sub> N <sub>4</sub> O <sub>5</sub> S	48.91 48.81	5.43 5.41	15.22 15.11	8.70 8.68
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Cont. TABLE (1)

27	<b>L-leu-N<sub>2</sub>H<sub>3</sub></b>	180-82	83	0.53	C <sub>16</sub> H <sub>22</sub> N <sub>4</sub> O <sub>5</sub> S	50.26 50.21	5.76 5.73	14.66 14.61	8.37 8.33
28	<b>L-Val-Gly-OMe</b>	284-86	65	0.61	C <sub>18</sub> H <sub>23</sub> N <sub>3</sub> O <sub>7</sub> S	50.82 50.81	5.41 5.37	9.88 9.83	7.53 7.51
29	<b>L-leu-Gly-OMe</b>	217-19	75	0.37	C <sub>19</sub> H <sub>25</sub> N <sub>2</sub> O <sub>7</sub> S	51.94 51.91	5.69 5.63	9.57 9.51	7.29 7.21
32	<b>Gly</b>	204-06	61	0.87	C <sub>18</sub> H <sub>22</sub> N <sub>2</sub> O <sub>6</sub> S	54.82 54.81	5.58 5.53	7.11 7.00	8.12 8.10
33	<b>DL-Ala</b>	196-98	66	0.69	C <sub>19</sub> H <sub>24</sub> N <sub>2</sub> O <sub>6</sub> S	55.88 55.83	5.88 5.83	6.86 6.83	7.84 7.81
34	<b>L-Val</b>	179-81	70	0.62	C <sub>21</sub> H <sub>28</sub> N <sub>2</sub> O <sub>6</sub> S	57.80 57.78	6.42 6.40	6.42 6.40	7.34 7.31
35a	<b>L-leu</b>	185-87	74	0.59	C <sub>22</sub> H <sub>30</sub> N <sub>2</sub> O <sub>6</sub> S	58.67 58.61	6.67 6.63	6.22 6.21	7.11 7.98
35b	<b>N.Me<sub>2</sub></b>	155-57	62	0.75	C <sub>18</sub> H <sub>24</sub> N <sub>2</sub> O <sub>4</sub> S	59.34 59.31	6.59 6.56	7.69 7.67	8.67 8.64
36	<b>L-Val-OMe</b>	230-32	81	0.72	C <sub>22</sub> H <sub>30</sub> N <sub>2</sub> O <sub>6</sub> S	58.67 58.63	6.67 6.63	6.22 6.21	7.11 7.98
37	<b>L-leu-OMe</b>	240-42	77	0.68	C <sub>23</sub> H <sub>32</sub> N <sub>2</sub> O <sub>6</sub> S	59.48 59.46	6.90 6.88	6.03 6.01	6.90 6.88
38	<b>Gly-Gly-OMe</b>	292-94	71	0.51	C <sub>21</sub> H <sub>27</sub> N <sub>3</sub> O <sub>7</sub> S	54.19 54.11	5.81 5.78	9.03 9.00	6.88 6.83
39	<b>L-Val-Gly-OMe</b>	207-09	76	0.54	C <sub>24</sub> H <sub>33</sub> N <sub>3</sub> O <sub>7</sub> S	56.80 56.77	6.51 6.49	8.28 8.26	6.31 6.26
40	<b>L-leu-GlyOMe</b>	270-72	78	0.60	C <sub>25</sub> H <sub>35</sub> N <sub>3</sub> O <sub>7</sub> S	57.58 57.51	6.72 6.70	8.06 8.00	6.14 6.11

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