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TRIAZINE DERIVATIVES

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No Drawing. Continuation of abandoned application Ser. No. 808,683, Mar. 19, 1971. This application June 15, 1971, Ser. No. 153,396

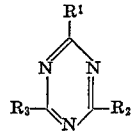
Claims priority, application Japan, Apr. 10, 1968, 43/23,906, 43/23,907; June 6, 1968, 43/38,831; June 28, 1968, 43/44,996

Int. Cl. C07d 55/20, 55/22

U.S. Cl. 260—249.6 3 Claims

ABSTRACT OF THE DISCLOSURE

Novel s-triazine derivatives having anti-inflammatory and anti-atherosclerotic activity and of the formula



wherein

R_1 stands for phenethylamino, aralkylamino, pyrrolidino, piperidino, 2-ketopiperazine-4-yl, cyclohexylamino or straight or branched hexylamino;

R_2 stands for amino, aralkylamino, pyrrolidino, piperidino, 2-ketopiperazine-4-yl, cyclohexylamino or straight or branched hexylamino; and

R_3 stands for straight or branched alkyl of from 1–6 carbon atoms, pyrrolidino, piperidino, 2-ketopiperazine-4-yl or NR_4R_5 in which R_4 is hydrogen or straight or branched alkyl of from 1–6 carbon atoms and R_5 is straight or branched alkyl with from 1–6 carbon atoms, with the proviso that

(a) when R_1 is phenethylamino, R_2 is amino and R_3 is straight or branched alkyl of from 2–6 carbon atoms;

(b) when R_1 is aralkylamino, pyrrolidino, piperidino or 2-ketopiperazine-4-yl, R_2 is the same or one of said groups and R_3 is straight or branched alkyl of from 1–6 carbon atoms;

(c) when R_1 is cyclohexylamino or straight or branched hexylamino, R_2 is the same or one of said groups and R_3 is straight or branched alkyl of from 1–6 carbon atoms; and

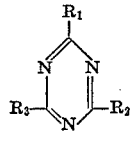
(d) when R_1 is cyclohexylamino, R_2 is amino and R_3 is pyrrolidino, piperidino, 2-ketopiperazine-4-yl or NR_4R_5, wherein R_4 and R_5 have the above meaning.

CROSS-REFERENCE TO PRIOR APPLICATION

This is a continuation application of Ser. No. 808,683, filed Mar. 19, 1969, now abandoned.

SUMMARY OF THE INVENTION

The invention relates to s-triazine derivatives of the formula



wherein

R_1 stands for phenethylamino, aralkylamino, pyrrolidino, piperidino, 2-ketopiperazine-4-yl, cyclohexylamino or straight or branched hexylamino;

R_2 stands for amino, aralkylamino, pyrrolidino, piperidino, 2-ketopiperazine-4-yl, cyclohexylamino or straight or branched hexylamino; and

R_3 stands for straight or branched alkyl of from 1–6 carbon atoms, pyrrolidino, piperidino, 2-ketopiperazine-4-yl or NR_4R_5 in which R_4 is hydrogen or straight or branched alkyl of from 1–6 carbon atoms and R_5 is straight or branched alkyl with from 1–6 carbon atoms, with the proviso that

(a) when R_1 is phenethylamino, R_2 is amino and R_3 is straight or branched alkyl of from 2–6 carbon atoms;

(b) when R_1 is aralkylamino, pyrrolidino, piperidino or 2-ketopiperazine-4-yl, R_2 is the same or one of said groups and R_3 is straight or branched alkyl of from 1–6 carbon atoms;

(c) when R_1 is cyclohexylamino or straight or branched hexylamino, R_2 is the same or one of said groups and R_3 is straight or branched alkyl of from 1–6 carbon atoms; and

(d) when R_1 is cyclohexylamino, R_2 is amino and R_3 is pyrrolidino, piperidino, 2-ketopiperazine-4-yl or NR_4R_5, wherein R_4 and R_5 have the above meaning.

The invention also embraces the acid addition salts of the compounds with organic or inorganic acids such as hydrochloric acid, maleic acid, tartaric acid, citric acid and lactic acid.

Activation of the reticuloendothelial system (RES) in mice is remarkably suppressed by preadministration of a compound having anti-inflammatory and anti-atherosclerotic activity. Therefore it is found that there is a strong correlation between RES and the compound and this correlation is used as a screening means to determine the utility of the present inventive compounds. The results of the physiological activities of the present inventive compounds by the above method are shown in Table I.

TABLE I

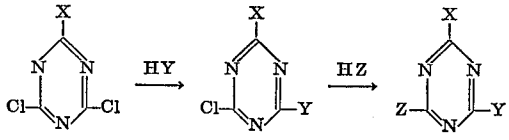
Compound of Example No.:	Mean compound activity
1	110
2	129.9
3	211.5
4	152.3
5	150.0
6	94.0
7	123.0
8	135.8
9	126.0
10	123.1
11	107.9
12	130.2
13	122.2
14	118.2
15	134.8
16	152.0
17	119.7
18	300.0
19	143.0
20	146.7
21	115.8
22	126.8
23	135.0
24	148.0
25	137.0
26	246.0
27	226.4
28	174.0
29	207.0
30	189.0
31	204.0
32	137.0
33	91.0

The correlation between the results of the above screening and the anti-inflammatory and anti-atherosclerotic activity is explained in a copending application.

The s-triazine derivatives of the present invention exhibit anti-inflammatory and/or anti-atherosclerotic activity. Further, various cortison-like or cortison-inhibitory activities have also been observed in the novel s-triazine derivatives. The inventive compounds are therefore not only pharmacologically useful as anti-atherosclerotic agents, but they are also anti-inflammatory agents which may replace steroidal anti-inflammatory agents.

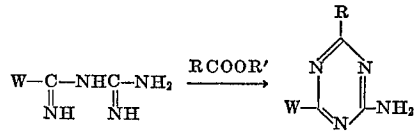
The compounds of the present invention can be prepared by two processes which are represented by the following schemes:

Process A:



wherein X is amino or alkyl and Y and Z are the same or different amino radicals.

Process B:



wherein W is phenethylamino, R is straight or branched alkyl of from 2–6 carbon atoms and R' is lower alkyl.

Example 1.—2-methyl-4,6-diphenethylamino-s-triazine

A solution of phenethylamine (4.8 g.) in chloroform (20 ml.) is added in dropwise manner and under cooling to a solution of 2-methyl-4,6-dichloro-s-triazine (3.2 g.) in chloroform (80 ml.). A solution of potassium carbonate (8.2 g.) in water (10 ml.) is also added to the reaction mixture. After completing the addition, stirring is continued for some time. The chloroform solution is washed with water, dried over anhydrous sodium sulfate and concentrated under reduced pressure to yield a crystalline precipitate. The precipitate is recrystallized from ethanol to yield 2-methyl-4,6-diphenethylamino-s-triazine as colorless crystals, M.P. 213–214° C. The yield is 1.0 g.

Analysis.—Calcd. for $C_{20}H_{23}N_5$ (percent): C, 72.04; H, 6.95; N, 21.01. Found (percent): C, 72.18; H, 7.08; N, 21.12.

Example 2.—2-n-butyl-4,6-diphenethylamino-s-triazine

Phenethylamine (9.7 g.) is added, with stirring, to a mixture of 2-n-butyl-4,6-dichloro-s-triazine (4.2 g.) in water (100 ml.). The mixture is slowly heated to reflux, and the refluxing temperature is maintained for 2 hours. After cooling, the product is collected by filtration and recrystallized from acetonitrile to give 2-n-butyl-4,6-diphenethylamino-s-triazine as colorless needles, M.P. 66–67° C. The yield is 4.0 g.

Analysis.—Calcd. for $C_{23}H_{29}N_5$ (percent): C, 73.56; H, 7.78; N, 18.65. Found (percent): C, 73.00; H, 7.80; N, 18.69.

Example 3.—2-methyl-4,6-dicyclohexylamino-s-triazine

Cyclohexylamine (8.0 g.) is added, with stirring, to a mixture of 2-methyl-4,6-dichloro-s-triazine (3.2 g.) in water (100 ml.). The mixture is slowly heated to reflux, and the refluxing temperature is maintained for 2 hours. After cooling, the product is collected by filtration and recrystallized from ethyl acetate to give 2-methyl-4,6-dicyclohexylamino-s-triazine as colorless needles, M.P. 187–189° C. The yield is 3.7 g.

Analysis.—Calcd. for $C_{16}H_{27}N_5$ (percent): C, 66.39; H, 9.40; N, 24.21. Found (percent): C, 66.23; H, 9.29; N, 23.05.

Example 4.—2-n-butyl-4,6-dicyclohexylamino-s-triazine

The compound is obtained by following the same process as in Example 3, except that 2-n-butyl-4,6-dichloro-s-triazine (4.2 g.) is employed instead of 2-methyl-4,6-dichloro-s-triazine. Recrystallization from n-hexane yields 3.0 g. of the compound, M.P. 136–137° C.

Analysis.—Calcd. for $C_{19}H_{33}N_5$ (percent): C, 68.84; H, 10.03; N, 21.13. Found (percent): C, 69.35; H, 10.17; N, 21.14.

Example 5.—2-methyl-4,6-dipyrrolidino-s-triazine

The compound is obtained by following the same process as in Example 1. Recrystallization from petroleum ether yields 1.0 g. of the compound, M.P. 83–85° C.

Analysis.—Calcd. for $C_{12}H_{19}N_5$ (percent): C, 61.77; H, 8.21; N, 30.02. Found (percent): C, 61.53; H, 8.11; N, 30.35.

Example 6.—2-methyl-4,6-di(2-ketopiperazine-4-yl)-s-triazine

The compound is obtained by following the same process as in Example 2. Recrystallization from ethanol yields 1.0 g. of the compound, M.P. 303° C. (dec.).

Analysis.—Calcd. for $C_{12}H_{17}N_7O_2$ (percent): C, 49.47; H, 5.88; N, 33.66. Found (percent): C, 49.18; H, 5.87; N, 34.34.

Example 7.—2-methyl-4,6-dipiperidino-s-triazine

The compound is obtained by following the same process as in Example 1. Recrystallization from petroleum ether yields 1.2 g. of the compound, M.P. 81–83° C.

Analysis.—Calcd. for $C_{14}H_{23}N_5$ (percent): C, 64.33; H, 8.87; N, 26.80. Found (percent): C, 64.09; H, 8.70; N, 27.19.

Example 8.—2-methyl-4-pyrrolidino-6-phenethylamino s-triazine

Phenethylamine (2.4 g.) is added, with stirring, to a mixture of 2-methyl-4-pyrrolidino-6-chloro-s-triazine (2.0 g.) in water (50 ml.). The mixture is slowly heated to reflux and the refluxing temperature is maintained for 3 hours. After cooling, the product is collected by filtration and recrystallized from isopropylalcohol to give 2-methyl-4-pyrrolidino-6-phenethylamino-s-triazine as colorless crystals, M.P. 135–136° C. Yield is 2.0 g.

Analysis.—Calcd. for $C_{16}H_{21}N_5$ (percent): C, 67.81; H, 7.47; N, 24.72. Found (percent): C, 67.64; H, 7.39; N, 24.96.

Example 9.—2-methyl-4-phenethylamino-6-(2-keto-piperazine-4-yl)-s-triazine

The compound is obtained by following the same process as in Example 8. Recrystallization from ethanol yields 10.0 g. of the compound, M.P. 231–233° C.

Analysis.—Calcd. for $C_{16}H_{20}N_6O$ (percent): C, 61.52; H, 6.45; N, 26.91. Found (percent): C, 61.14; H, 6.38; N, 26.32.

Example 10.—2-methyl-4,6-di-n-hexylamino-s-triazine

The compound is obtained by following the same process as in Example 2. Recrystallization from ethyl acetate yields 3.0 g. of the compound, M.P. 154–155° C.

Analysis.—Calcd. for $C_{16}H_{31}N_5$ (percent): C, 65.48; H, 10.65; N, 23.87. Found (percent): C, 65.61; H, 10.60; N, 23.84.

Example 11.—2-n-butyl-4,6-di-n-hexylamino-s-triazine

The compound is obtained by following the same process as in Example 2. Recrystallization from ethyl acetate yields 1.0 g. of the compound, M.P. 97–98° C.

Analysis.—Calcd. for $C_{19}H_{37}N_5$ (percent): C, 68.01; H, 11.12; N, 20.87. Found (percent): C, 67.90; H, 11.03; N, 20.76.

Example 12.—2-amino-4-cyclohexylamino-6-piperidino-s-triazine

Piperidine (5.1 g.) is added, with stirring, to a mixture of 2-amino-4-cyclohexylamino-6-chloro-s-triazine (6.8 g.) in water (150 ml.). The mixture is slowly heated to reflux and the refluxing temperature is maintained for 2.5 hours. After cooling, the reaction mixture is extracted with chloroform, and the chloroform solution is washed with water, dried over anhydrous sodium sulfate and concentrated under reduced pressure to give a syrup which is treated with ethanol-water to yield a crystalline precipitate. The precipitate is collected by filtration and recrystallized from 60% ethanol to give the compound as colorless needles, M.P. 123–127° C. Yield is 3.0 g.

Analysis.—Calcd. for $C_{14}H_{24}N_6$ (percent): C, 60.84; H, 8.75; N, 30.41. Found (percent): C, 60.31; H, 8.64; N, 30.48.

Example 13.—2-amino-4-cyclohexylamino-6-(2-keto-piperazine-4-yl)-s-triazine

A solution of 2-ketopiperazine (5.4 g.) in water (50 ml.) is added, with stirring, to a mixture of 2-amino-4-cyclohexylamino-6-chloro-s-triazine (6.1 g.) in water (150 ml.). The mixture is slowly heated to reflux and the refluxing temperature is maintained for 3 hours. After cooling, the product is collected by filtration and recrystallized from ethanol to give 2-amino-4-cyclohexylamino-6-(2-ketopiperazine-4-yl)-s-triazine as colorless crystals, M.P. 266–269° C. Yield is 2.3 g.

Analysis.—Calcd. for $C_{13}H_{21}N_7O$ (percent): C, 53.59; H, 7.27; N, 33.66. Found (percent): C, 53.80; H, 7.37; N, 34.02.

Example 14.—2-ethyl-4,6-diphenethylamino-s-triazine

The compound is obtained by following the same process as in Example 2, except that 2-ethyl-4,6-dichloro-s-triazine (3.6 g.) is employed instead of 2-n-butyl-4,6-dichloro-s-triazine. Recrystallization from acetonitrile yields 4.4 g. of the compound, M.P. 147–148° C.

Analysis.—Calcd. for $C_{21}H_{25}N_5$ (percent): C, 72.59; H, 7.25; N, 20.16. Found (percent): C, 72.45; H, 7.11; N, 20.26.

Example 15.—2-n-propyl-4,6-diphenethylamino-s-triazine

The compound is obtained by following the same process as in Example 2, except that 2-n-propyl-4,6-dichloro-s-triazine (3.8 g.) is employed instead of 2-n-butyl-4,6-dichloro-s-triazine. Recrystallization from acetonitrile yields 5.9 g. of the compound, M.P. 96–97° C.

Analysis.—Calcd. for $C_{22}H_{27}N_5$ (percent): C, 73.09; H, 7.53; N, 19.38. Found (percent): C, 73.08; H, 7.35; N, 19.23.

Example 16.—2-isopropyl-4,6-diphenethylamino-s-triazine

The compound is obtained by following the same process as in Example 2, except that 2-isopropyl-4,6-dichloro-s-triazine (3.8 g.) is employed instead of 2-n-butyl-4,6-dichloro-s-triazine. Recrystallization from acetonitrile yields 5.0 g. of the compound, M.P. 90–91° C.

Analysis.—Calcd. for $C_{22}H_{27}N_5$ (percent): C, 73.09; H, 7.53; N, 19.38. Found (percent): C, 72.98; H, 7.59; N, 19.04.

Example 17.—2-ethyl-4,6-dicyclohexylamino-s-triazine

The compound is obtained by following the same process as in Example 3, except that 2-ethyl-4,6-dichloro-s-triazine (3.6 g.) is employed instead of 2-methyl-4,6-dichloro-s-triazine. Recrystallization from acetonitrile yields 4.5 g. of the compound, M.P. 179° C.

Analysis.—Calcd. for $C_{17}H_{29}N_5$ (percent): C, 67.29; H, 9.63; N, 23.08. Found (percent): C, 67.27; H, 9.60; N, 23.17.

Example 18.—2-n-propyl-4,6-dicyclohexylamino-s-triazine

The compound is obtained by following the same process as in Example 3, except that 2-n-propyl-4,6-dichloro-s-triazine (3.8 g.) is employed instead of 2-methyl-4,6-dichloro-s-triazine. Recrystallization from acetonitrile yields 4.3 g. of the compound, M.P. 145–146° C.

Analysis.—Calcd. for $C_{18}H_{31}N_5$ (percent): C, 68.10; H, 9.84; N, 22.06. Found (percent): C, 67.85; H, 9.73; N, 22.06.

Example 19.—2-isopropyl-4,6-dicyclohexylamino-s-triazine

The compound is obtained by following the same process as in Example 3, except that 2-isopropyl-4,6-dichloro-s-triazine (3.8 g.) is employed instead of 2-methyl-4,6-dichloro-s-triazine. Recrystallization from acetonitrile yields 5.5 g. of compound, M.P. 149–150° C.

Analysis.—Calcd. for $C_{18}H_{31}N_5$ (percent): C, 68.10; H, 9.84; N, 22.06. Found (percent): C, 68.07; H, 9.85; N, 21.93.

Example 20.—2-n-hexyl-4,6-dicyclohexylamino-s-triazine

The compound is obtained by following the same process as in Example 3, except that 2-n-hexyl-4,6-dichloro-s-triazine (4.7 g.) is employed instead of 2-methyl-4,6-dichloro-s-triazine. Recrystallization from acetonitrile yields 6.3 g. of the compound, M.P. 114° C.

Analysis.—Calcd. for $C_{21}H_{37}N_5$ (percent): C, 70.15; H, 10.37; N, 19.48. Found (percent): C, 70.18; H, 10.32; N, 19.60.

Example 21.—2-amino-4-phenethylamino-6-ethyl-s-triazine

Phenethylbiguanide hydrochloride (24.1 g.) is added to a solution of sodium (2.3 g.) methanol and sodium chloride formed is removed by filtration. To the filtrate is added, with stirring, ethyl propionate (10.2 g.) under cooling (−40° C.). The mixture is stirred at room temperature for 4 hours and treated with water (800 ml.). On standing several days, the product is collected by filtration and recrystallized from isopropylalcohol to give 2-amino-4-phenethyl-6-ethyl-s-triazine as colorless prismatic crystals, M.P. 140.5–142° C. Yield is 11.4 g.

Analysis.—Calcd. for $C_{13}H_{17}N_5$ (percent): C, 64.17; H, 7.04; N, 28.79. Found (percent): C, 64.07; H, 7.12; N, 28.59.

Example 22.—2-amino-4-phenethylamino-6-n-propyl-s-triazine

The compound is obtained by following the same process as in Example 21, except that ethyl butylate (15.0 g.) is employed instead of ethyl propionate. Recrystallization from isopropanol yields 12.2 g. of the compound, M.P. 89–91° C.

Analysis.—Calcd. for $C_{14}H_{19}N_5$ (percent): C, 65.34; H, 7.44; N, 27.22. Found (percent): C, 64.94; H, 7.77; N, 27.09.

Example 23.—2-amino-4-phenethylamino-6-isopropyl-s-triazine

The compound is obtained by following the same process as in Example 21, except that ethyl isobutylate (15.0 g.) is employed instead of ethyl propionate. Recrystallization from acetonitrile yields 12.2 g. of the compound, M.P. 80–81° C.

Analysis.—Calcd. for $C_{14}H_{19}N_5$ (percent): C, 65.34; H, 7.44; N, 27.22. Found (percent): C, 65.12; H, 7.36; N, 27.57.

Example 24.—2-amino-4-phenethylamino-6-n-butyl-s-triazine

The compound is obtained by following the same process as in Example 21, except that ethyl valerate (17.0 g.) is employed instead of ethyl propionate. Recrystallization from isopropanol yields 13.4 g. of the compound, M.P. 93–95° C.

Analysis.—Calcd. for $C_{15}H_{21}N_5$ (percent): C, 66.39; H, 7.80; N, 25.18. Found (percent): C, 65.70; H, 7.68; N, 25.90.

Example 25.—2-amino-4-phenethylamino-6-isobutyl-s-triazine

The compound is obtained by following the same process as in Example 21. Recrystallization from isopropanol yields 11.3 g. of the compound, M.P. 109–110.5° C.

Analysis.—Calcd. for $C_{15}H_{21}N_5$ (percent): C, 66.39; H, 7.80; N, 25.81. Found (percent): C, 66.19; H, 7.86; N, 26.06.

Example 26.—2-amino-4-cyclohexylamino-6-methylamino-s-triazine

40% methylamine (4.7 g.) is added, with stirring, to a mixture of 2-amino-4-cyclohexylamino-6-chloro-s-triazine (6.8 g.) in water (150 ml.). The mixture is slowly heated to reflux and the refluxing temperature is maintained for 2 hours. After cooling, the product is collected by filtration and recrystallized from acetonitrile to give the compound as white crystals, M.P. 189–190° C. Yield is 4.9 g.

Analysis.—Calcd. for $C_{10}H_{18}N_6$ (percent): C, 54.03; H, 8.16; N, 37.81. Found (percent): C, 54.12; H, 8.25; N, 37.94.

Example 27.—2-amino-4-cyclohexylamino-6-ethylamino-s-triazine maleate

70% ethylamine (3.9 g.) is added, with stirring, to a mixture of 2 - amino - 4 - cyclohexylamino - 6 - chloro-s-triazine (6.8 g.) in water (150 ml.). The mixture is slowly heated to reflux and the refluxing temperature is maintained for 2 hours. After cooling, the reaction mixture is extracted with ethyl acetate and the ethyl acetate solution is washed with water, dried over anhydrous sodium sulfate and concentrated under reduced pressure to give a syrup. The syrup is dissolved in methanol (20 ml.), added to a solution of maleic acid (2.3 g.) in methanol (10 ml.) and the mixture is refluxed for 1 hour to yield a crystalline precipitate. The precipitate is collected by filtration and recrystallized from ethanol to give the compound as white crystal-powder, M.P. 160–161° C. Yield is 3.6 g.

Analysis.—Calcd. for $C_{15}H_{24}N_6O_4$ (percent): C, 51.12; H, 6.87; N, 23.85. Found (percent): C, 51.20; H, 6.86; N, 23.63.

Example 28.—2-amino-4-cyclohexylamino-6-n-propylamino-s-triazine maleate

The compound is obtained by following the same process as in Example 27. Recrystallization from acetonitrile yields 4.5 g. of the compound, M.P. 169–170° C.

Analysis.—Calcd. for $C_{16}H_{26}N_6O_4$ (percent): C, 52.44; H, 7.15; N, 22.94. Found (percent): C, 52.57; H, 7.29; N, 22.96.

Example 29.—2-amino-4-cyclohexylamino-6-n-butylamino-s-triazine maleate

The compound is obtained by following the same process as in Example 27. Recrystallization from methanol yields 3.7 g. of the compound, M.P. 156–158° C.

Analysis.—Calcd. for $C_{17}H_{28}N_6O_4$ (percent): C, 53.66; H, 7.42; N, 22.09. Found (percent): C, 53.62; H, 7.55; N, 22.16.

Example 30.—2-amino-4-cyclohexylamino-6-dimethylamino-s-triazine maleate

The compound is obtained by following the same process as in Example 13. Recrystallization from acetonitrile yields 5.2 g. of the compound, M.P. 134–136° C.

Analysis.—Calcd. for $C_{11}H_{20}N_6$ (percent): C, 55.90; H, 8.53; N, 35.57. Found (percent): C, 55.97; H, 8.69; N, 35.27.

Example 31.—2-amino-4-cyclohexylamino-6-diethylamino-s-triazine maleate

The compound is obtained by following the same process as in Example 27. Recrystallization from acetonitrile yields 6.5 g. of the compound, M.P. 167–169° C.

Analysis.—Calcd. for $C_{17}H_{28}N_6O_4$ (percent): C, 53.66; H, 7.42; N, 22.09. Found (percent): C, 53.66; H, 7.26; N, 22.06.

Example 32.—2-amino-4-cyclohexylamino-6-di-n-propylamino-s-triazine maleate

The compound is obtained by following the same process as in Example 27. Recrystallization from acetonitrile yields 5.0 g. of the compound, M.P. 130–132° C.

Analysis.—Calcd. for $C_{19}H_{32}N_6O_4$ (percent): C, 55.86; H, 7.90; N, 20.58. Found (percent): C, 55.50; H, 7.96; N, 20.69.

Example 33.—2-amino-4-cyclohexylamino-6-di-n-butylamino-s-triazine maleate

The compound is obtained by following the same process as in Example 27. Recrystallization from acetonitrile yields 5.0 g. of the compound, M.P. 121–122° C.

Analysis.—Calcd. for $C_{21}H_{36}N_6O_4$ (percent): C, 57.77; H, 8.31; N, 19.25. Found (percent): C, 57.89; H, 8.30; N, 19.61.

What is claimed is:

1. 2 - methyl - 4,6-di-(2-ketopiperazine-4-yl)-s-triazine.
2. 2 - methyl - 4 - phenethylamino - 6 - (2-ketopiperazine-4-yl)-s-triazine.
3. 2 - amino - 4 - cyclohexylamino-6-(2-ketopiperazine-4-yl)-s-triazine.

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