玉 子 色	—	R-104	Y-1	—
メ ロ ン 色	—	—	—	Y-4, B-2
小 豆 色	O-1	—	R-101 (or R-1)	R-2, Y-4, B-2

* R=食用赤色, Y=食用黄色, O=食用だいだい色, B=食用青色, G=食用緑色を示し, 1, 2……等は色素番号を現わす. 即ち Y-4=食用黄色 4 号, R-101=食用赤色 101 号を意味する.

国立衛生試験所大阪支所

Summary

Japanese official water-soluble food colors were divided chemically into four groups by the existing A.O.A.C. method. Each of the groups was developed by paper chromatography (ascending method) using a different solvent for each group and divided into each dye. The isolated dye on the filter paper was detected by its R_f value and colorations with conc. HCl, conc. H₂SO₄, 10% NaOH, or dil. ammoniac water. It was found through this study that the R_f values were dependent on the molecular weight and dissociation constant. Examples of isolation of marketed mixed dyes by this method are given.

(Received May 13, 1953)

207. 藤川福二郎, 中島邦夫, 徳岡曉正, 人長有平*, 中沢昭三, 尾松徳五郎, 隅山 陣**:
試験管内に於ける諸種有機化合物の抗菌作用に関する研究 (第5報¹⁾)

Fukujiro Fujikawa, Kunio Nakajima, Akimasa Tokuoka, Yuhei Hitosa*
Syozo Nakazawa, Tokugoro Omatu, and Tamuro Sumiyama**:

Studies on the antibacterial Activity of some
Organic Compounds *in vitro*. V.

(Kyoto College of Pharmacy*, and Department of Microbiology, Kyoto
Pref. Med. University**)

本報では Diphenylmethan 系化合物 10 種, Cyclohexylphenol (I) 系化合物 4 種, Acetophenon (II) 並びに Benzophenon (III) 系化合物 19 種, 2,4-Dioxy-5-alkylbenzaldehyd 系化合物 5 種, 2,4-Dioxy-3-chlor-5-alkylbenzaldehyd 系化合物 4 種, Semicarbazon 類 4 種, Thiosemicarbazon 類 15 種計 61 種の化合物の黄色葡萄球菌 209 P 株 (*Micrococcus pyogenes* var. *aureus*), 普通大腸菌 (*Escherichia coli communior*) 及び枯草菌 (*Bacillus subtilis*) に対する *in vitro* に於ける抗菌作用を試験した結果に就いて報告するが, 試験方法は第1報の通りであり試験成績は次表の通りであるが, 表中の数字は何れも完全発育阻止濃度を示すが次表が示す如く黄色葡萄球菌に対して8万倍で完全に発育を阻止したものに 5,4'-Dichlor-2,4-dioxydiphenylmethan (IV), 2,4-Dioxy-5-heptylbenzaldehyd (V), 2,4-Dioxy-3-chlor-5-äthylbenzaldehydthiosemicarbazon (VI), 2,4-Dioxy-3-chlor-5-butylbenzaldehydthiosemicarbazon (VII), α -Collatolsäuredithiosemicarbazon (VIII) 等があり, 16 万倍で発育を阻止したものに 2,4-Dioxy-3-chlor-5-hexylbenzaldehyd (IX), Monochlorisohämatommsäuremethylesterthiosemicarbazon (X) があり, 32 万倍で発育を阻止したものに 2,4-

1) 第4報: 本誌 73, 537 (1953)

* Yamashina-misasagi, Higashiyama-ku, Kyoto.

** Kawaramachi-hirokoji, Kamikyo-ku, Kyoto.

2,4-Dioxy-5-isoamylbenzaldehydthiosemicarbazon (XI) があり 64 万倍で発育を阻止したものに 2,4-Dioxy-3-chlor-5-hexylbenzaldehydthiosemicarbazon (XII) があつた. なお枯草菌に対して 8 万倍で発育を阻止したものに IV, VI, VII, VIII 及び X の各化合物があり, 16 万倍で発育を阻止したものに XI, 32 万倍で発育を阻止したものに XII の化合物があつた. なお普通大腸菌に対しては 1 万倍で発育を完全に阻止した化合物はあつたが, それ以上の濃度で阻止した化合物はなく本実験中の 61 種の化合物中よりは発育阻止力の強い化合物は見出せなかつた. なお参考のため表の終りに対照化合物の 3 種の菌に対する完全発育阻止濃度を記載しておいた.

終りに本実験に於ける京都府立医大微生物学教室鈴木成美教授の御指導に対し, 又実験に協力された馬場マス氏に併せて深甚の謝意を表す.

	<i>Micrococcus pyogenes</i> var. <i>aureus</i>	<i>Escherichia coli</i> <i>communior</i>	<i>Bacillus subtilis</i>
Diphenylmethan 系化合物			
1. 4-Benzylresorcin	<10,000	10,000	10,000
2. 4'-Brom-2,4-dioxydiphenylmethan	40,000	10,000	40,000
3. 5-Chlor-2,4-dioxydiphenylmethan	20,000	10,000	20,000
4. 2'-Chlor-2,4-dioxydiphenylmethan	20,000	10,000	20,000
5. 4'-Chlor-2,4-dioxydiphenylmethan	20,000	10,000	20,000
6. 5,4'-Dichlor-2,4-dioxydiphenylmethan (IV)	80,000	10,000	80,000
7. 4-Oxydiphenylmethan	40,000	10,000	40,000
8. 2,4,2',4'-Tetraoxy-6,6'-dimethyldiphenylmethan	<10,000	10,000	<10,000
9. 2,4,6,2',4',6'-Hexaoxydiphenylmethan	<10,000	<10,000	<10,000
10. 2,3,4,2',3',4'-Hexaoxydiphenylmethan-6,6'-dicarbonsäure	<10,000	<10,000	<10,000
Cyclohexylphenol 系化合物			
1. 2-Nitro-4-cyclohexylphenol	<10,000	<10,000	<10,000
2. 2-Amino-4-cyclohexylphenol	<10,000	<10,000	<10,000
3. 2-Amino-4-cyclohexylphenolhydrochlorid	10,000	<10,000	10,000
4. 2-Chlor-6-amino-4-cyclohexylphenol	20,000	<10,000	20,000
Acetophenon 並びに Benzophenon 系化合物			
1. Resacetophenon	10,000	10,000	<10,000

2. Orcacetophenone	<10,000	<10,000	<10,000
3. 4-Propionylresorcin	<10,000	<10,000	<10,000
4. 2,4,6-Trioxyacetophenon	<10,000	10,000	<10,000
5. 2,4-Dioxy-3,6-dimethylacetophenon	<10,000	<10,000	<10,000
6. 2,4-Diacetyl-1,3-dioxybenzol	<10,000	<10,000	<10,000
7. 2,4-Dioxybutyrophenon	<10,000	<10,000	<10,000
8. 5-Chlor-2,4-dioxybutyrophenon	10,000	10,000	<10,000
9. 3,5-Dichlor-2,4-dioxyisovalerophenon	<10,000	<10,000	<10,000
10. 3,5-Dichlor-2,4-dioxyvalerophenon	<10,000	<10,000	<10,000
11. 4-Benzoresorcin	10,000	10,000	<10,000
12. 2,4,6-Trioxybenzophenone	<10,000	<10,000	<10,000
13. 2-Oxy-5-methoxybenzophenon	<10,000	<10,000	<10,000
14. 6-Methyl-2,4-dioxybenzophenon	<10,000	<10,000	<10,000
15. 2,4-Dioxy-6-methylbenzophenon-3-carbonsäure	<10,000	<10,000	<10,000
16. 4'-Methyl-2,4-dioxybenzophenon	20,000	10,000	10,000
17. 6,4'-Dimethyl-2,4-dioxybenzophenon	<10,000	10,000	10,000
18. 3,6-Dimethyl-2,4-dioxybenzophenon	10,000	<10,000	<10,000
19. 6-Propyl-2,4-dioxybenzophenon	<10,000	<10,000	<10,000
2,4-Dioxy-5-alkylbenzaldehyd 系化合物			
1. 2,4-Dioxy-5-äthylbenzaldehyd	20,000	<20,000	<20,000
2. 2,4-Dioxy-5-butylbenzaldehyd	<20,000	<20,000	<20,000
3. 2,4-Dioxy-5-isoamylbenzaldehyd	20,000	<20,000	<20,000
4. 2,4-Dioxy-5-hexylbenzaldehyd	40,000	<20,000	40,000
5. 2,4-Dioxy-5-heptylbenzaldehyd (V)	80,000	<20,000	40,000
2,4-Dioxy-3-chlor-5-alkylbenzaldehyd 系化合物			
1. 2,4-Dioxy-3-chlor-5-äthylbenzaldehyd	<20,000	<20,000	<20,000
2. 2,4-Dioxy-3-chlor-5-butylbenzaldehyd	20,000	<20,000	<20,000
3. 2,4-Dioxy-3-chlor-5-isoamylbenzaldehyd	40,000	<20,000	20,000
4. 2,4-Dioxy-3-chlor-5-hexylbenzaldehyd (IX)	160,000	<20,000	40,000
Semicarbazon 類			
1. <i>p</i> -Sulfonamidbenzaldehydsemicarbazon	10,000	10,000	10,000
2. <i>p</i> -Methoxybenzaldehydsemicarbazon	<10,000	<10,000	<10,000
3. 2,4-Dioxyacetophenonsemicarbazon	<10,000	<10,000	<10,000
4. Benzophenonsemicarbazon	<10,000	<10,000	<10,000
Thiosemicarbazon 類			
1. <i>p</i> -Methoxybenzaldehydthiosemicarbazon	<10,000	<10,000	<10,000
2. <i>p</i> -Acetylaminobenzaldehydthiosemicarbazon	<10,000	<10,000	<10,000
3. <i>p</i> -Dimethylaminobenzaldehydthiosemicarbazon	10,000	10,000	10,000
4. <i>p</i> -Äthylsulfonbenzaldehydthiosemicarbazon	<10,000	<10,000	<10,000
5. Orcylaldehydthiosemicarbazon	<10,000	<10,000	<10,000
6. β -Orcylaldehydthiosemicarbazon	10,000	10,000	10,000
7. <i>p</i> -Thymotinaldehydthiosemicarbazon	10,000	10,000	10,000
8. Resorcylaldehydthiosemicarbazon	10,000	10,000	10,000
9. Monochlorhämatommsäuremethylester-thiosemicarbazon	10,000	10,000	10,000
10. Monochlorisohämatommsäuremethylester-thiosemicarbazon (X)	160,000	<10,000	80,000
11. 2,4-Dioxy-5-isoamylbenzaldehydthiosemicarbazon (XI)	320,000	10,000	160,000

12. 2,4-Dioxy-3-chlor-5-äthybenzaldehyd-thiosemicarbazon (V)	80,000	<10,000	80,000
13. 2,4-Dioxy-3-chlor-5-butylbenzaldehyd-thiosemicarbazon (VII)	80,000	10,000	80,000
14. 2,4-Dioxy-3-chlor-5-hexylbenzaldehyd-thiosemicarbazon (XII)	640,000	<10,000	320,000
15. α -Collatolsäuredithiosemicarbazon (VIII)	80,000	10,000	80,000
対 照 化 合 物			
1. Furacin	80,000	80,000	80,000
2. Aureomycin	320,000	320,000	320,000
3. Chloromycetin	320,000	320,000	640,000
4. Terramycin	160,000	80,000	40,000
5. Penicillin	10,000,000	無 効	160,000
6. Streptomycin	1,280,000	160,000	640,000

京都薬科大学, 京都大学結核研究所

Summary

Growth inhibitory action against three kinds of bacteria was tested in 61 kinds of compounds. The compounds that were effective in completely inhibiting the growth of *Micrococcus pyogenes* var. *aureus* in 80,000 dilution were 5,4'-dichloro-2,4-dihydroxydiphenylmethane, 2,4-dihydroxy-5-heptylbenzaldehyde, 2,4-dihydroxy-3-chloro-5-ethylbenzaldehyde thiosemicarbazone, 2,4-dihydroxy-3-chloro-5-butylbenzaldehyde thiosemicarbazone, and α -collatolic acid dithiosemicarbazone, in 160,000 dilution by 2,4-dihydroxy-3-chloro-5-hexylbenzaldehyde and methyl monochloroisohaematommate thiosemicarbazone, in 320,000 dilution by 2,4-dihydroxy-5-isoamylbenzaldehyde thiosemicarbazone, and in 640,000 dilution by 2,4-dihydroxy-3-chloro-5-hexylbenzaldehyde thiosemicarbazone. The compounds effective in inhibiting growth of *Bacillus subtilis* in 80,000 dilution were 5,4'-dichloro-2,4-dihydroxydiphenylmethane, 2,4-dihydroxy-3-chloro-5-ethylbenzaldehyde thiosemicarbazone, 2,4-dihydroxy-3-chloro-5-butylbenzaldehyde thiosemicarbazone, α -collatolic acid dithiosemicarbazone, and methyl monochloroisohaematommate thiosemicarbazone, in 160,000 dilution by 2,4-dihydroxy-5-isoamylbenzaldehyde thiosemicarbazone, and in 320,000 dilution by 2,4-dihydroxy-3-chloro-5-hexylbenzaldehyde thiosemicarbazone. Some compounds were able to inhibit the growth of *Escherichia coli communior* in 10,000 dilution but none were effective in higher dilutions.

(Received May 13, 1953)