

with other aspects are being published elsewhere in a separate paper.

N. R. TAWDE.
J. M. PATEL.

Royal Institute of Science,
Bombay,
August 5, 1937.

¹ *Dictionary of Applied Chemistry*, 3, pp. 206-15.

² *Proc. Roy. Soc.*, (A), 1932, 137, 575.

³ *Ind. and Eng. Chem. Journ.*, 1928, 20, 1004.

Rottlerin.

ROTTLERIN has been investigated by numerous authors. Perkin¹ advocated the formula $C_{33}H_{30}O_9$. Telle² confirmed that the empirical formula was $C_{11}H_{10}O_3$ but found M.W. to be 496 instead of 570 required for $C_{33}H_{30}O_9$. We have now found that rottlerin can be easily methylated if rottlerin (2 g.), dry potassium bicarbonate (16 g.), dimethyl sulphate (8 c.c.) and acetone (50 c.c.) are refluxed for 4 hrs. and then potassium carbonate (8 g.) introduced and the heating continued for 45 minutes. The product isolated by dilution with water and keeping overnight crystallises from alcohol, m.p. 144°. This substance is not further acetylated indicating complete absence of any alcoholic groups, etc. Therefore, it serves for an exact molecular weight determination. Found: C, 71.71; H, 6.65; MeO, 24.13; M.W. (micro Rast) 524; $C_{27}H_{22}O_3$ (OCH_3)₄ requires C, 71.81; H, 6.56; MeO, 23.94; M.W. 518. These data cannot be explained on the basis of C_{33} formula for rottlerin. Again tetrahydro-rottlerin, formed by catalytic hydrogenation of rottlerin gives an acetyl derivative m.p. 178° which gave M.W. 630, 641, 642 respectively in benzene, agreeing with the C_{27} formula. It analysed as C, 65.92; H, 5.69; whilst the C_{33} formula would not accommodate these data. The tetramethyl ether of tetrahydro-rottlerin, m.p. 108°, prepared in the manner described above also gave M.W. and analytical values only agreeing with the C_{27} formula.

When rottlerin tetramethyl ether is oxidised by alkaline hydrogen peroxide, it is quantitatively converted into a substance $C_{31}H_{36}O_8$, m.p. 128° (decomp.). This substance on catalytic reduction is transformed into tetramethyl ether of tetrahydro-rottlerin.

Rottlerin tetramethyl ether gave a substance $C_{19}H_{21}O_6N$ (?) with sodium nitrite and acetic acid which can be catalytically reduced to $C_{19}H_{23}O_6N$. The substance

$C_{19}H_{21}O_6N$ decomposes into benzaldehyde with alkali.

These various derivatives of rottlerin are being further studied.

K. S. NARANG.
J. N. RAY.
B. S. ROY.

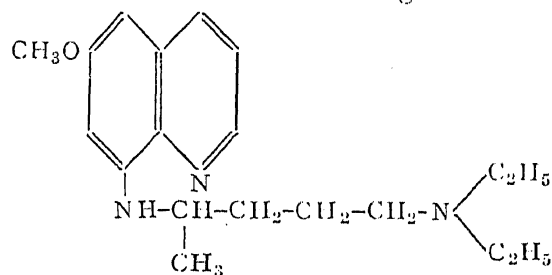
University Chemical Laboratory,
Lahore,
October 4, 1937.

¹ Perkin, *J.*, 1895, 67, 230.

² Telle, *Arch. Pharm.*, 1906, 244, 441.

A New Colour Test for Chromates and Dichromates.

WHILE investigating to find out a suitable colour test for the newly discovered anti-malarial drug 6-methoxy-8-(α -methyl- δ -diethyl amino butyl) amino quinoline, (Plasmoquine), it was noticed that chromates and dichromates gave rise to a



beautiful rich purple colour with plasmoquine in presence of oxalic acid at a pH below 6.5. Although the colour fades quickly and disappears gradually giving finally a colourless solution, it gives an excellent qualitative test for all chromates and dichromates at a dilution upto 1 in 100,000. Whilst investigations are in progress to stabilise the colour for a basis of quantitative colourimetric determination of plasmoquine at high dilutions (1 in 500,000) in the animal tissues, blood and urine, it is worthwhile mentioning here that the colour is specific for chromates and dichromates and so far as can be roughly ascertained, the intensity of the colour seems to be directly proportional to the concentrations of plasmoquine and the chromates or the dichromates. Incidentally, however, the stabilisation of the colour will also give a very simple colourimetric method for analytical estimations of chromates and dichromates at high dilutions.

A spectrum of the colour shows a characteristic selective absorption in the visible. The colour is discharged very quickly on warming, but remains for a considerable

length of time in ice-cold water. The phenomenon is definitely that of an oxidation of plasmoguinone, where probably a transient semi-quinone type compound is formed by partial oxidation. If the colour could be stabilised at the ordinary temperature it should be possible to subject it to a potentiometric study according to Michaelis,¹ and also investigate for paramagnetic properties according to Taylor and Lewis,² for any semiquinone type phenomena.

A striking coincidence is that the complex acids of tungsten and molybdenum which also belong to the same group as chromium (Group VI) in the Periodic Table of classification of elements, also develop a characteristic blue colour with plasmoguinone in an alkaline medium. This latter investigation has been studied at length and is being communicated for publication.

B. K. NANDI.

Department of Pharmacology,
Haffkine Institute, Bombay,
September 28, 1937.

¹ Michaelis, L., and Hill, E. S., *Jour. Amer. Chem. Soc.*, 1933, 55, 1481.

² Taylor, N. W., and Lewis, G. N., *Proc. Nat. Acad. Sci.*, 1925, 11, 456.

Current Bedded Pebbles in the Dharwar Conglomerates.

In April 1935, while studying the nature of some of the conglomerate beds in the neighbourhood of Saulanga and Bikonhalli (Shimoga District), I noticed in some of them a few pebbles of quartzite with indications of current bedding. The pebbles were small, hardly exceeding 2 or 3 inches in diameter and consequently their structure was not well pronounced. Subsequently in December 1936, while examining the eastern extension of these conglomerates in the neighbourhood of Holalur, I was able to find many more of such pebbles, the bigger ones being nearly 1½ to 2 feet in length. Some of them show the current

bedded structure very well as could be seen from Fig. 1.

In February of this year when examining a portion of the Chitaldrug schist belt, I noticed again quite a large number of pebbles of quartzite with well pronounced current bedded structure, occurring in the conglomerates exposed to the east of Talya (Holalkere Taluk). Fig. 2 is an accurate drawing of one of such pebbles collected from this area and retained in the museum of the Mysore Geological Department.

My assistant Mr. B. N. Raghunatha Rao who mapped the area further south has collected recently a few of such pebbles in the conglomerates near Madadkere. Therefore, it is clear that pebbles of current bedded quartzites do occur in some of the conglomerates of both the Shimoga and the Chitaldrug schist belts.

In the Saulanga Holalur occurrences of the Shimoga schist belt I was unable to trace the source of such pebbles, since the current bedded and ripple marked quartzites of the area were found to be consistently overlying the conglomerates and consequently of a younger formation. But in the vicinity of Talya in the Chitaldrug schist belt, the current bedded quartzites were found to be older than the



Fig. 1. Quartzite pebble showing current bedding.
From the conglomerate bed about 6 fur. N.W. of Holalur,