TABLE III
Antispasmodic action against prostaglandin PGE$_1$ on guinea-pig ileum preparations$^4$

<table>
<thead>
<tr>
<th>No.</th>
<th>Compound</th>
<th>Percentage inhibition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quercetin</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Naringenin</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Homo-eriodictiol</td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td>Myricetin</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Morin</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>Quercetin-7-methyl ether</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>Cyanidin hydrochloride</td>
<td>0</td>
</tr>
</tbody>
</table>

Flavonoids were prepared from natural sources or synthetically at different times in the course of other work in this laboratory.

The details of the methods employed for pharmacological studies of the flavonoids and biflavonoids and the significance of these findings in the light of relevant literature and discussion will be reported elsewhere.

Dept. of Chemistry, S. Natarajan,
University of Delhi, V. V. S. Murti,
Delhi-7; and T. R. Seshadri.
Dept. of Pharmacology, A. S. Ramaswamy.
All-India Institute of Medical Sciences,
New Delhi-16, August 17, 1970.


COMPLEMENTARY ACTION OF POTASSIUM AND BENZYLAMINO-PURINE ON GROWTH,
CHLOROPHYLL, PROTEIN AND RNA SYNTHESIS IN CUCUMBER COTYLEDONS

It has been found that KCl stimulates growth and chlorophyll synthesis in detached cucumber cotyledons, and suggested that K$^+$ accelerates synthesis of either proteins or nucleic acids.

To prove this assumption, the cotyledons, dissected from etiolated 5-day-old Cucumis sativus L. var. 'Deliates' seedlings, were incubated with water, KCl and benzylaminopurine (BAP) for 21 hours in light at 24$^\circ$C and then transferred into solutions of leucine-$\text{U}^{-14}$C (1 $\mu$Ci/ml.) or uracil-2-$\text{14}$C (5 $\mu$Ci/ml.) for 3 hours (light of 1,400 lux; 24$^\circ$C). Each incubational medium contained penicillin G, 50 mg/l. RNA, protein and chlorophyll were extracted and estimated according to modified methods. Radioactivity was counted under SSU-4 W scintillation detector with a counting efficiency of approximately 20%.

BAP increased the net growth by about 200%, slightly affecting chlorophyll accumulation. KCl threefold and twofold stimulated growth and chlorophyll synthesis, respectively. Both compounds synergistically accelerated growth of the cotyledons (Table I).

The compounds had little effect on the content of protein. BAP markedly enhanced the level of RNA per cotyledon basis. KCl stimu-

TABLE I
Synthesis of protein and RNA in detached cucumber cotyledons, pretreated with KCl (0.025 M) and BAP (10$^{-8}$ M) in light

<table>
<thead>
<tr>
<th>Original cotyledons</th>
<th>Water (Control)</th>
<th>KCl</th>
<th>BAP</th>
<th>KCl+BAP</th>
<th>L.S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh weight, mg/cotyledon</td>
<td>19.7</td>
<td>21.8</td>
<td>30.8</td>
<td>32.0</td>
<td>46.5</td>
</tr>
<tr>
<td>Chlorophyll, $\mu$g/cotyledon</td>
<td>3.1</td>
<td>4.0</td>
<td>7.0</td>
<td>7.0</td>
<td>40.2</td>
</tr>
<tr>
<td>Protein, mg/cotyledon</td>
<td>1.5</td>
<td>2.0</td>
<td>3.0</td>
<td>3.0</td>
<td>49.3</td>
</tr>
<tr>
<td>RNA, $\mu$g/cotyledon</td>
<td>93.0</td>
<td>124.4</td>
<td>156.0</td>
<td>205.8</td>
<td>215.4</td>
</tr>
</tbody>
</table>

Feeding with leucine-$\text{U}^{-14}$C for 3 hr.

80% ethanol soluble compounds, counts/min/cotyledon | 1240 | 1320 | 2060 | 1440 | 2010 | 230 |

Protein, counts/min/cotyledon | 600 | 3160 | 8200 | 3500 | 5500 | 320 |

Specific activity of protein, counts/min/mg | 535 | 2940 | 8200 | 3380 | 5430 | 310 |

Feeding with uracil-$\text{U}^{-14}$C for 3 hr.

Methanol soluble compounds, counts/min/cotyledon | 1470 | 3180 | 4380 | 4280 | 6600 | 340 |

Specific activity of RNA, counts/min/mg | 150 | 910 | 713 | 2064 | 2154 | 150 |

Original cotyledons were incubated with radioactive precursors immediately after dissecting.
lated leucine-14C incorporation into proteins by 250%, and slightly reduced synthesis of RNA. BAP, on the contrary, little affected protein synthesis and doubled the rate of uracil-14C incorporation into RNA per cotyledon basis. In the cotyledons pretreated with KCl + BAP the synthesis of protein was less intense than in the KCl alone treated sample, but markedly higher than in the water-treated control; synthesis of RNA was as intense as in the BAP alone treated series.

KCl accelerated uptake of labelled leucine and uracil from the media; BAP stimulated uptake of uracil only (Table 1).

It seems that K+ stimulates growth and chlorophyll accumulation owing to a selective acceleration of protein synthesis. BAP primarily induces RNA synthesis. In consequence, the highest growth rate is manifested by KCl + BAP-treated cotyledons because in this case the accelerated synthesis of proteins is preceded by (and accompanied with) the accelerated synthesis of ribonucleic acids.

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Dept. of Plant Physiology,
University of Lodz,
Lodz, Poland, August 17, 1970.


HEMIDACTYLUS FLAVIVIRIDIS
A PARATENIC HOST OF RICTULARIA CAHIRESIS

Of the two species of Rictularia Fröhlich, 1802, known from carnivores, R. cahirensis Jägerskiöld, 1904 has been recorded in dog, cat and several wild carnivores.1-5 Finding of encysted larvae of this species at Mukteswar-Kumaon from serous coats of lizard was reported.8 In R. coloroensis (parasitic in white-footed mouse), some species of crickets and cockroaches have been found as vectors in natural and experimental infections and the flour beetle too has experimentally been incriminated.6-7-9

Numerous specimens of Hemidactylus flaviviridis, collected locally and from Agra, yielded encysted nematode larvae from the gastric and intestinal walls on many occasions. On extrac-
tion, the nearly spherical and whitish cysts of 0.188-0.208 x 0.229-0.254 mm. in diameter revealed coiled juveniles. The actively motile excysted stage, of 0.710-0.961 mm. in length and 0.032-0.061 mm. in maximum breadth, had a cylindrical buccal capsule of 0.009-0.013 x 0.006-0.014 mm. size with prominent lips and leading to the oesophagus in two parts—the anterior muscular of 0.086-0.139 mm. with the brain mass lying nearly in middle at 0.068-0.091 mm. and the excretory pore towards its posterior region at 0.097-0.149 mm. behind the anterior end respectively and the 0.214-0.270 mm. long posterior glandular part. The 0.029-0.042 mm. long rectum was surrounded by the three unicellular rectal glands. The tail, of 0.048-0.052 mm. length and lacking caudal processes at the tip, revealed a pair of small papillae situated at 0.017-0.022 mm. in front of the posterior end. The genital primordia of 0.008-0.019 x 0.005-0.007 mm. in size was situated at 0.139-0.255 mm. distance in front of the posterior end behind the oesophago-intestinal junction.

To determine the specific identity, numerous cysts were fed to a rabbit, a guinea-pig, a pigeon, a chick and a kitten. The kitten alone, on slaughter conducted on the 90th day of the infection, yielded adult specimens consisting of four males and 10 females. A large number of re-encysted forms were, however, recovered from the guinea-pig autopsied on 18th day of the infection—the location being the stomach wall. The juveniles were recovered after leaving the stomach in artificial gastric juice for digestion. These specimens resembled fully the infective stage administered.

The collection of the adult worms, after detailed study, was referable to R. cahirensis on account of the body dimensions and the morphology as described by Baylis.2 The four male specimens, however, exhibited an additional pair of sessile papillae on the anterior margin of cloaca. According to Baylis,2 Jägerskiöld had described the anterior of the three pairs of the precloacal papillae as pedunculated while Massino had stated them to be sessile. In our specimens, these papillae were all pedunculated.

The role of the wall lizard as paratenic host of R. cahirensis has experimentally been demonstrated.

Grateful acknowledgement is due to the Indian Council of Agricultural Research for the award of a Senior Research Fellowship to one of the authors (V. P. G.).