A STUDY ON THE PURGATIVE ACTIVITY OF TRIPHALA

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Biological studies of Triphala and each of its three components reveal that emblic and belleric myrobalans not only increase the purgative effect of chebulic myrobalans to a certain extent but also possibly render the irregular peristalsis induced by the latter to somewhat uniformly progressive, till the maximum effect is achieved.

Triphala, an indigenous remedy, has been described as a safe and effective laxative and is also extensively used as adjuncts to other medicines in numerous diseases of liver and gastrointestinal tract (Nadkarni, 1954; Charaka Samhita 1949). It consists of equal parts of powdered chebulic myrobalans (Harar), belleric myrobalans (Behra) and emblic myrobalans (Amla) (Council of scientific and industrial research, 1952). Each of these components individually has been claimed to possess laxative properties depending upon the maturity of myrobalans while emblic and belleric myrobalans in addition manifest carminative and astringent action respectively (Chopra et al., 1958; Kirtikar and Basu, 1933).

The purgative activity of Triphala and its components (Inamdar et al., 1962; Chakravarti and Tayal, 1947; Patel et al., 1959) has been investigated in the past and this has indicated that the activity of Triphala resides only in chebulic myrobalans.

A survey of the literature, however, revealed that the effect of emblic and belleric myrobalans on the purgative activity of chebulic myrobalans in Triphala has not been studied so far and this proposition has been investigated, for which Triphala as a whole and each of the three components individually have been tested biologically on rats for their purgative activity.

METHODS

The aqueous extracts of Triphala and its components were prepared separately by extracting the coarse powder of the drug with four times its quantity of distilled water for 24 hours in a mechanical shaker working at a speed of 102 strokes per min. The aqueous extract was strained and the marc
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components reveal that emblic and chebulic myrobalans to a greater extent induced by the latter to achieve.

ribed as a safe and effective remedy compared to other medicines in this respect (Nadkarni, 1954; Chopra, 1973; and Khandelwal, 1977). Each of these components individually has been investigated and found to have purgative properties depending on the nature of the component (Chopra, 1973; and Khandelwal, 1977).

The aqueous extract of each drug under test was administered into the stomach of six rats of one group with the help of a rubber catheter while an equal amount of distilled water was given to the six animals of the second group which acted as a control. During the test period a special food consisting of 2 parts of powdered rat diet and 1 part of water was supplied and to avoid increased peristalsis, green vegetables were excluded from the diet one week before the experiment.

The degree of catharsis was determined by the rate of faecal output (per 100 g of rat weight), the faeces being collected and weighed every three hours. These observations have been recorded in Table. A period of at least 24 hours was allowed between each test before the next experiment was begun.

<table>
<thead>
<tr>
<th>Time in hrs after the myrobalans dose</th>
<th>Emblic myrobalans</th>
<th>Belleric myrobalans</th>
<th>Chebulic myrobalans</th>
<th>Triphala</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0.030</td>
<td>0.000</td>
<td>0.095</td>
<td>0.054</td>
<td>0.000</td>
</tr>
<tr>
<td>6</td>
<td>0.000</td>
<td>0.000</td>
<td>0.06</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>9</td>
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<td>0.022</td>
<td>0.184</td>
<td>0.272</td>
<td>0.081</td>
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<tr>
<td>12</td>
<td>0.094</td>
<td>0.070</td>
<td>0.156</td>
<td>0.154</td>
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<tr>
<td>15</td>
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<td>0.687</td>
<td>0.297</td>
<td>0.369</td>
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<tr>
<td>18</td>
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<td>0.000</td>
<td>0.271</td>
<td>0.309</td>
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</tr>
<tr>
<td>21</td>
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<td>0.175</td>
<td>0.149</td>
<td>0.167</td>
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</tr>
<tr>
<td>24</td>
<td>0.067</td>
<td>0.000</td>
<td>0.070</td>
<td>0.167</td>
<td>0.157</td>
</tr>
</tbody>
</table>

a,b,d and e: Aqueous extracts representing 0.3 g of the drug per 100 g of rat weight. c and f: Aqueous extract representing 0.2 g and 0.6 g of the drug respectively per 100 g of rat weight. g: distilled water equivalent to the volume of the aqueous extract.
least 15 days was allowed between experiments to permit the animals to readjust themselves to normal.

Effect on the isolated gut.—The stimulant effect of *Triphala* and chebulic myrobalans was studied by suspending the isolated ileum of rabbit in the oxygenated Tyrode solution at 37°. One and two ml (1 ml representing 0.1 g of the drug) of the aqueous extract of chebulic myrobalans and *Triphala* were added to the 40 ml of the bath solution successively and effects produced by these drugs were recorded in Figs. 1 and 2. A ten times concentration of the aqueous solution of chebulic myrobalans produced spasm in the loop.

![Fig. 1. Effect on the isolated gut of 1 ml (representing 0.1 g of drug) and 2 ml of aqueous extract of 'Triphala'.](image1)

![Fig. 2. Effect on the isolated gut of 1 ml (representing 0.1 g drug) and 2 ml of aqueous extract of chebulic myrobalans.](image2)
the animals to re-

Triphala and chebulic myrobalans in the dose of 0.3 g per 100 g of rat weight did not possess any laxative property while chebulic myrobalans in the same dose showed definite laxative effect. On increasing the dose of Triphala from 0.3 g to 0.6 g purgative effect was observed which was found to be more than that produced by chebulic myrobalans in the dose of 0.3 g, though Triphala actually contained 0.2 g of the former. This indicates that emblic and belleric myrobalans increase the purgative activity of chebulic myrobalans in Triphala to a certain extent.

It has also been observed that the abnormal curve obtained in the case of chebulic myrobalans is indicative of the irregular peristalsis brought about by this drug. The results have been substantiated by the study of the effect of these drugs on the isolated gut. Chebulic myrobalans and Triphala stimulated the peristalsis to a varying degree and the curve obtained with the latter was comparatively regular. It appears that carminative and astringent properties of emblic and belleric myrobalans in Triphala seem to play an important part in soothing the irregular peristalsis induced by chebulic myrobalans and thus the peristalsis with Triphala rendered somewhat uniformly progressive till the maximum purgative effect is achieved.

REFERENCES