exposure. It, therefore, suggests that active cell metabolism is necessary for benomyl to be an inactivating agent. Benomyl also induces mutations only when present in the growth medium and not in resting cells. As seen in figure 1, the number of petites remains constant when exposed to benomyl in phosphate buffer but the number increases to a maximum of 23.5% when treated in growth medium. Mutation induction and inactivation is neither due to the pH of the medium (5.5) nor due to the presence of glucose since cells suspended in phosphate buffer (pH 5.5, 0.1M) and containing glucose (2%) show no inactivation.

TABLE 1

Mass complementation analysis of benomyl induced petite mutants with 9B ϱ^-

	Total number of mutants tested	Complementation with 9B ρ^-	
		+	−
Control	108	0	108
Benomyl induced	132	31	101

To determine whether benomyl induces both segregational and cytoplasmic respiratory deficient mutations, a larger number of randomly selected mutants were subjected to mass complementation test against a standard cytoplasmic petite 9B, ϱ^- (table 1). Out of 108 petites isolated from cells suspended in phosphate buffer, none complemented with the tester while out of 132 benomyl induced mutants, 31 complemented with the tester strain (22.7%). It therefore appears that about ¼ of the respiratory deficient mutations induced by benomyl are of segregational type.

Benomyl like in *Ustilago maydis* induces cell inactivation only in growth medium[6]. Being a purine analogue it is likely that the cell inactivation occurs only as a consequence of incorporation of this analogue during the DNA replication. It appears to be a potent mutagen for the induction of segregational respiratory deficient mutations.

The financial assistance received by one of us (PG) from the Council of Scientific and Industrial Research is gratefully acknowledged.

9 December 1981

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ANTI-INFLAMMATORY ACTIVITY OF LAWSONIA INERMIS

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NADKARNI[1] has reported the use of Lawsonia inermis as an anti-inflammatory agent. Keeping in view the anti-inflammatory action of the leaves, an attempt has been made to evaluate this activity by standard techniques.

Powdered shade dried leaves of the plant (100 g) were extracted with 250 ml of 95% ethyl alcohol for 24 hr in a soxhlet. It was cooled, filtered, evaporated on water bath under reduced pressure and the residue obtained. The extract was tested for alkaloid, glycoside and saponin as per standard tests. A positive test was obtained for glycoside as the hydrolysed products of the extract decolourised Benedict's solution. Further study of isolation of glycoside is in progress.

The aqueous suspension of the extract of 10 mg/ml was prepared and was used as a stock solution. The pH of the suspension was adjusted to 7.0 with 10% sodium hydroxide.

The anti-inflammatory activity of alcoholic extract was tested in albino rats by Brodie's hind paw oedema test[2], Granuloma pouch test[3] and Lint pellet test[4,5]. The alcoholic extract of the drug was given by *intraperitonial* route.

Inflammation was produced by injecting 1% carrageenin solution in a dose of 0.2 ml each in the plantar aponeurosis of albino rats for Brodie's hind paw oedema test. The granuloma pouch test was performed by producing granuloma pouches by injecting 0.5 ml of 1% croton oil dissolved in almond oil. Lint (cotton) pellet test was performed by inserting lint cloth pellets (weighing approximately 2 mg) in the axillary area. The degree of deposition of granulation tissue on lint pellet indicated the degree of inflammation. The observations are shown in table 1.

TABLE I

Comparison of anti-inflammatory activity of Lawsonia Inermi with Hydrocortisone

	Control Normal saline	Drug 10 mg/kg	Hydrocortisone 10 mg/kg
1. Brodie's hind paw oedema test			
(a) Ankle diameter (in mm)	10.73 SE ± 0.004	7.75 SE ± 0.001 $p < 0.001$	7.60 SE ± 0.007 $p < 0.001$
(b) Paw diameter (in mm)	10.73 SE ± 0.024	7.44 SE ± 0.021 $p < 0.001$	8.50 SE ± 0.10 $p < 0.01$
(c) Paw volume (in ml)	21.50 SE ± 0.021	18.00 SE ± 0.004 $p < 0.001$	17.30 SE ± 0.10 $p < 0.01$
2. Granuloma pouch test Weight of granuloma pouches (in g)	1.69 SE ± 0.004	1.36 SE ± 0.014 $p < 0.001$	1.40 SE ± 0.021 $p < 0.05$
3. Lint pellet test Weight difference of Lint pelletes (in mg)	4.00 SE ± 0.04	1.38 SE ± 0.014 $p < 0.001$	1.0 SE ± 0.129 $p < 0.2$

The readings are the average of four observations in each case.

An analysis of the results reveals that the alcoholic extract of Lawsonia inermis is endowed with anti-inflammatory activity as revealed by Brodie's hind paw oedema test, Granuloma pouch test and Lint pellet test. The anti-inflammatory activity of Lawsonia inermis is comparable to that of hydrocortisone.

25 November 1981

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ON THE DEVELOPMENTAL MORPHOLOGY OF SOME ABNORMAL STOMATAL TYPES IN THE LEAF GALLS OF *BARLERIA PRIONOTIS* LINN., (ACANTHACEAE) INDUCED BY *FERISINA VIRGATA* (COCCIDAE: INSECTA)

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INVESTIGATIONS on the comparative morphology of stomata on insect-induced galls though better known[1-3], studies on the developmental morphology of these abnormal types appear meagre. Studies on the morphogenesis of the galls of *Barleria prionotis* induced by a coccid, resulting in abnormal rolling and twisting of leaves provided interesting data on the stomatal types whose developmental patterns are discussed.

Developmental stages of normal and galled leaves were collected from the Campus Garden and fixed in FAA. Epidermal peels were obtained by macerating in Jeffrey's fluid; they were stained with toluidine Blue, and mounted in 50% glycerine.