Since, albuminated surfaces are found to be blood compatible[2], the surface of these grafts was modified by coating with albumin in such a way that it does not leach off. To do so, we first exposed our grafts to albumin solution in phosphate buffer, pH 7.4 (50 mg%) for about 2½ hr taking care of air/water interface as described elsewhere[2]. These grafts were then rinsed in distilled water vigorously and then irradiated[3] for about two and half hr to ^{60}Co source (0.25 MHz/hr). After irradiation the grafts were again exposed in albumin solution (50 mg%) as before for two and one half hours, rinsed again and exposed to glutaraldehyde (2.5%) for one hour in clean room and stored in 0.5% glutaraldehyde until used.

Such albuminated grafts showed negligible platelet adhesion[3] (1.25 ± 0.6 in the vision field microscopically compared to ~4.0 Bare grafts) and found uniform on the basis of contact angle observations[3] (of water contact angle ~67.0 ± 2.0). Details of the platelet adhesion and contact angle techniques have been described elsewhere[2].

These grafts (diameter 4.5–5.00 mm) are currently being tried as replacement for iliac artery in mongrel dogs and the early results appear promising.

Further attempts are being made to expose such grafts for about an hour to albumin again. So that, more albumin molecules may get immobilised through the process of glutaraldehyde coupling[4]. In this case *in vivo* test for prolonged period may prove to be superior. Since the uppermost layer of albumin is least affected conformationally compared to the natural protein. More studies related to the platelet adhesion and changes due to conformational variations of albumin during grafting with irradiation time is being reported elsewhere[3].

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BIOASSAY OF HERBICIDAL ACTIVITY WITH PIGMENT CONTENT AND CO_2 FIXATION

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The primary site of action of different herbicides could generally be located in photosynthesis, respiration or nucleic acid metabolism[1]. The present study is aimed to evaluate the effect of four herbicides, with different primary sites of action, on the photosynthesis.

Vicia faba was grown in green house at $20 \pm 2°$ C with a 14 hr photoperiod. The pots, with one-month old plants were supplied with cobex (N, N 3-diethyl 2,4 dinitro-6-trifluromethyl-1,3 benzene diamine), dalapon (2,2-dichloropropionic acid), 2,4-D (2,4-dichlorophenoxyacetic acid) and simazine (2 chloro-4, 6-*bis* (ethylamino)-*s*-triazine), at a concentration of 50 ppm on w/w basis. The duration of the treatment was 5 days, 2 days, 6 hr and 1 hr. Leaching by water was avoided during the treatment. These potted plants were placed in chambers where $^{14}CO_2$ was generated by reacting Ca $^{14}CO_3$ (30 microcurie) and 10 ml of 1N HCl. The material of middle leaves (5 g) was crushed with 10 ml of distilled water and 1 ml of the aliquot was counted for ^{14}C. The pigment concentration was determined according to Arnon[2], Duxbury and Yentsch[3].

The data indicate that irrespective of the mode of action, the pigment contents in leaves got lowered with all the herbicides experimented. Though the primary site of action of triazines is in photosynthesis, simazine induced the loss of pigments in *V. faba* even at one hour treatment. But cobex, with the primary site located in nucleic acid metabolism, and 2,4-D, a hormone type of weed killer, too affected the pigment contents. The small loss in pigments with dalapon (five days treatment) points towards a weaker secondary effect. The pigment contents and the corresponding fixation of carbon dioxide prove that the herbicides, not primarily designed to affect photosynthesis also affect it. However, this reduction, whether due to destruction or inhibition of their biosynthesis is not known. In susceptible varieties the killing action is thus supplemented by low photo-synthetic activity and ultimate starvation.

In other studies[4,5] the chlorophylls have been used as indicators of residual toxicity; the data obtained here confirm the use of pigment content in the evaluation of the new cultivars against the herbicides.

The author thanks Prof Harper and Prof. Sagar,

TABLE 1

Pigment contents and fixation of $^{14}CO_2$ in V. faba after herbicide treatments

Duration of Treatment	Pigment content (mg/g fr. wt.)			
	Chl.a	Chl.b	Carotenoids	Counts/minute
Simazine				
1 hr	2.61	1.30	0.73	197
6 hr	2.42	1.17	0.71	167
2 days	2.14	1.12	0.70	107
4 days	1.91	0.97	0.68	74
Cobex				
1 hr	2.60	1.36	0.76	213
6 hr	2.56	1.36	0.72	194
2 days	2.45	1.18	0.69	171
5 days	2.11	1.01	0.66	146
2,4-D				
1 hr	2.66	1.30	0.71	198
6 hr	2.63	1.28	0.71	192
2 days	2.58	1.24	0.70	159
5 days	2.41	1.20	0.68	141
Dalapon				
1 hr	2.68	1.34	0.71	205
6 hr	2.68	1.33	0.68	202
2 days	2.64	1.30	0.68	197
5 days	2.51	1.26	0.66	170

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TAPETAL DIMORPHISM IN TWO SPECIES OF *PREMNA* L.

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THE importance of anther tapetum as one of the embryological parameters of systematic significance is well established[1]. During the examination of the embryology of two species of *Premna* (*P. latifolia* Roxb. and *P. serratifolia* Linn.) tapetal dimorphism and *in situ* germination of pollen grains have been encountered. Since these features have not hitherto been known in the earlier embryological literature[2-7], it is desirable to describe these features along with some observations on the genesis of anther.

The anther is quadrisporangiate. The development of the anther wall from the hypodermal plate of archesporial cells, which is differentiated at the corner of each anther lobe, corresponds to the Dicot type[8]. At the microsporocyte stage, the anther lobe comprises three wall layers—the endothecium, middle layer and secretory tapetum—below the epidermis (figures 1,4 and 6). This agrees closely with that reported in *Nyctanthes arbor-tristis*[2] but stands in contrast to the one described in *Lippia nodiflora* (-*Phyla nodiflora*)[3] in which the genesis of the anther wall is referable to the Monocot type[8] and in *Avicennia officinalis*[4] in which an anther wall comprises three to five cell layers.