The Presence of Colchicine Alkaloids in *Kreysigia multiflora* Reichb.

Earlier investigations[1-7] have shown that the colchicine group of alkaloids (alkaloids with tropolone ring) are present in all the genera of the subfamily Wurmbaeoideae[8,9] (Family Liliaceae), i.e. the genera Gloriosa, Littonia, Sandersonia, Ornithoglossum, Iphigenia, Camptorrhiza, Baeometra, Colchicum, Bulbocodium, Androcymbium, Dipidax, Wurmbea and Anguillaria; the plants of the genus Neodregea of this subfamily have not been investigated as yet. Colchicine alkaloids have not so far been detected in other plant genera[10]. While carrying out a comparative study of the anatomy of the plants of the subfamily Melanthioideae (from which he subsequently excluded[8] the subfamily Wurmbaeoideae), BUXBAUM[11] recalled the genus of the Australian plant *Kreysigia*[12] (Family Liliaceae). He did not, however, study the plant *Kreysigia* more closely because of lack of material.

Recently BADGER and BRADBURY[13] isolated 4 alkaloids lacking a tropolone ring from *Kreysigia multiflora*. The properties of these alkaloids (UV-spectra, number of carbon atoms in the skeleton) resemble those of the non-tropolone alkaloids present in some plants[1-7] of the subfamily Wurmbaeoideae which occur in association with tropolone alkaloids and are their precursors[14-16]. Accordingly, *K. multiflora* was examined for colchicine and its relatives. The separation (with chloroform) of the extract obtained from dried material (110 g) of the whole plant *K. multiflora* into a neutral-phenolic (0.33%) and a basic portion (0.81%) was followed by chromatography on alumina. This showed that the neutral phenolic fraction contained the alkaloids colchicine (yield 27 mg, m.p. 154–156 °C, $[\alpha]_D^{22} - 121 \pm 2°$ in chloroform) and N-formyl-N-deacetylcolchicine (yield 60 mg, m.p. 264–267 °C, $[\alpha]_D^{22} - 173 \pm 2°$ in chloroform); the basic portion contained the non-tropolone alkaloids which were isolated earlier[13] and, in all probability, a small quantity of N-methyldemecolchicine[5] (evidence obtained only from thin layer chromatography)[17].

These results show that the colchicine group of alkaloids is present not only in plants of the subfamily Wurmbaeoideae but also in the related genus *Kreysigia* where they had not previously been recognized. Thus, chemotaxonomic support is provided for the relationship of the genus *Kreysigia* to the genera of the subfamily Wurmbaeoideae[8].

Zusammenfassung. Die Isolierung der Alkaloide Colchicin und N-Formyl-N-desacetylcolchicin aus *Kreysigia multiflora* wird beschrieben.

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Evidence of Genetic Control of Blood Potassium Type in the Marwari Breed of Sheep in India

On the basis of concentration of potassium in the blood, sheep can be classified into high (HK) and low (LK) potassium types[1-3]. Available information[1] indicates that potassium types are genetically controlled by a single gene in which LK is dominant over HK. However, similar investigations[2] conducted on American breeds did not clarify the exact mode of inheritance, although the results did not contradict the suggestion of a single Mendelian gene. Evidence[4] is also available which suggests that potassium types in Australian merino is governed by multiple genes. In the absence of definite information on the genetic control of potassium types, the present study on one of the Indian breeds (Marwari) was undertaken particularly in view of the fact that information on this breed is lacking and also because potassium types have adaptive significance[5].

The concentration of potassium in the blood of 102 Marwari sheep (4 sires, 49 dams and 49 progeny) was estimated using an 'EEL' photometer by the method described by KING and WOOTTON[6]. The number and potassium types of progeny resulting from various

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matings along with the concentration of potassium in each type are given in the Table.

The results show that all HK × HK matings resulted in HK progeny, whereas HK × LK and LK × LK resulted in both HK and LK types. This indicates that HK is inherited as a simple recessive character and LK animals may be either homozygous or heterozygous. HK × HK mating is essentially required to confirm whether HK is a recessive character, and since the number of this type of mating is fairly high in this experiment, the deficiency of an earlier study[2] on an American breed is, therefore, removed. This promotes confidence in the hypothesis that HK is a recessive character.

Potassium type of progeny from matings of rams and ewes of various phenotypes

Ram		Ewes			
Identification No.	Potassium type	LK (9.27)		HK (25.20)	
		Progeny			
		LK	HK	LK	HK
G 75	HK (26.24)	2 (9.60)	2 (29.22)	–	11 (29.65)
G 423	HK (32.64)	1 (9.60)	1 (26.24)	–	10 (30.78)
G 475	HK (32.64)	2 (9.20)	4 (34.08)	–	3 (30.29)
G 988	LK (9.60)	2 (10.21)	2 (35.84)	6 (10.62)	3 (31.36)

Figures in parenthesis represent blood potassium concentration in mEq/l. The concentration in LK varies from 6.40–12.80 and in HK from 24.97–37.12.

Résumé. Par le photomètre Flame la concentration du potassium dans le sang de 102 moutons marvaris (4 mâles, 49 femelles et leurs 49 descendants) a été mesuré. Sur ce nombre, 45 appartiennent au type HK (à forte concentration, moyenne 30,34 mEq/l – de 24,97 à 37,12) et 27 au type LK (à faible concentration, moyenne 9,72 mEq/l, – de 6,40 à 12,80). Le caractère HK est donc héréditaire récessif tandis que les individus de type LK sont peut-être homozygotes ou hétérozygotes.

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Investigations on the Relation Between β-Lipoproteins and Plasma Euglobulin Fibrinolysis

PAPPENHAGEN and co-workers[1] found that chylomicrons and lipoproteins of low density inhibit the fibrinolysis of plasma euglobulin. The elimination of chylomicrons from the serum of patients suffering from atherosclerosis causes, as was demonstrated by SARKAR in his investigations[2], an increase in the fibrinolytic activity of these sera. It has recently been reported that the β-lipoproteins isolated from human blood plasma inhibit the action of plasmin in pure systems[3].

RIDING and ELLIS[4] showed that a parallel rise in β-lipoprotein antiplasmin activity in the serum and in the cholesterol level occurs as pregnancy progresses. BURSTEIN[5], however, found that there is a considerable rise in β-lipoproteins in the serum of parturients and puerperants. Some authors[6,7] have also reported that during pregnancy the fibrinolytic activity is lowered.

These data suggest that there is a connection between fibrinolytic activity and the β-lipoprotein level in the blood serum.

The aim of the investigations presented here was to determine the effect of β-lipoproteins on the fibrinolysis of the plasma euglobulin fraction in vitro, and to study the fibrinolytic activity in the euglobulin fraction and the β-lipoprotein level in the serum of women during and after labour.

Material and methods. β-lipoproteins obtained from the sera of 10 healthy women, aged 20–40 years, by the BURSTEIN method[5] were dissolved in a borate buffer at pH 7.4 in the initial volume of the serum. From the plasma of the same women, euglobulins were obtained by the KOWALSKI method[8]. Some of these euglobulins were dissolved in a borate buffer at pH 7.4 (controls) and the remainder were dissolved in a buffer to which various concentrations of β-lipoprotein were added (1.1, 0.55, 0.275, 0.138 mg).

The euglobulins were coagulated with calcium chloride and the lysis time was determined[8]. The homogeneity of the β-lipoproteins was confirmed by paper electrophoresis. Investigations on the euglobulin time[8], the level of β-lipoproteins[5] during labour and confinement, and the values of plasminogen[9], were carried out on 49 women in the first stage of labour and the third and fourth day of puerperium.

Discussion. As Figure 1 shows, β-lipoproteins isolated from the serum and dissolved in a borate buffer, when added to the euglobulin fraction of the plasma, definitely lengthen the fibrinolysis time of the clot formed from that fraction. The results obtained in these investigations indicate an inhibition of the fibrinolysis by the β-lipoproteins. Our results confirm those of PAPPENHAGEN and co-workers[1]. RIDING and ELLIS[4] and one of the authors of this paper[3] demonstrated the inhibitive action of β-lipo-

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