

ALKALOIDS AND CHROMOSOME NUMBERS OF *PAPAVER POLYCHAETUM* AND *P. TRINIIFOLIUM*

G.SARIYAR*, N.ÖZHATAY**, M.ATAY*, A.SARI*

SUMMARY

In this work the major alkaloids of six different collections of *P. triniifolium* Boiss. and *P. polychaetum* Schott and Kotschy (both endemic to Turkey) have been investigated and the chromosome numbers of some of the samples have been counted.

ÖZET

Bu çalışmada *P. triniifolium* Boiss. türüne ait farklı bölgelerden toplanmış altı örnek ve *P. polychaetum* Schott and Kotschy (ikisi de Türkiye için endemik) türlerinin ana alkaloitleri araştırılmış ve bazı örneklerin kromozom sayıları saptanmıştır.

Key words: *P. triniifolium* Boiss., *P. polychaetum* Schott and Kotschy, alkaloids, chromosome numbers.

INTRODUCTION

Some Turkish *Papaver* species of the section *Miltantha* have been found to produce high yields of the medicinally important alkaloids narcotine and thebaine(1-6). The existence of thebaine as the major alkaloid has been shown in *P. fugax* while lesser amount was found in *P. cylindricum* and *P. triniifolium* (2,3). Narcotine was isolated as the major alkaloid from *P. cylindricum*, *P. fugax* and *P. armeniacum* (2,4). Previous work on *P. triniifolium* has revealed the existence of two different chemical strains in Turkey (3).

* University of İstanbul, Faculty of Pharmacy, Department of Pharmacognosy, 34452 İstanbul, Turkey.

** University of İstanbul, Faculty of Pharmacy, Department of Pharmaceutical Botany, 34452 İstanbul, Turkey

RESULTS AND DISCUSSION

Five of the six samples of *P. triniifolium* contained (+)-oreodine together either with (+)-rheodine or (-)-thebaine or (-)-mecambrine. (-)- α -Narcotine was detected only in one sample. A sample of *P. polychaetum* was found to contain berberine.

Plant material (six different collections of *P. triniifolium* coded T1-T5 and *P. polychaetum* coded P1) were collected from East Anatolia. Voucher specimens are deposited in the Herbarium of the Faculty of Pharmacy at the University of Istanbul (ISTE).

All material were collected from natural habitats and chromosome numbers were counted of some collections which are marked with asterix in the Table 2. Vouchers are kept in the ISTE. The results are recorded in Table 1 and 2.

Table 1: Chromosome numbers and alkaloids isolated from Turkish samples of *P. polychaetum* and *P. triniifolium*

Samples	Chromosome Number (2n)	Alkaloid				
		Narcotine	Mecambrine	Thebaine	Berberine	Oreodine Rhoeadine
P1	28				+	
T1				+		+
T2			+			+
T3	14					+
T4	28					+
T5	14	+				
T6						+

Table 2: Weights of plant material and major alkaloids obtained from Turkish samples of *P. polychaetum* and *P. triniifolium*

Samples	ISTE No.	Material weight (g)	Total	Major alkaloid weight ¹
			Alkaloid weight (mg)	(mg)
*P1	60478	20	43	11 (b)
T1	57086	22	170	80 (o), 50 (t)
T2	57101	40	170	60 (m), 40 (r), 30 (o)
*T3	57109	56	1200	500 (o), 300 (r)
*T4	58054	40	150	90 (o)
*T5	62006	100	380	180 (n)
T6	63463	10	27	8 (o), 5 (r)

¹Alkaloids: b= berberine; m= (-)-mecambrine; n= (-)- α -narcotine; o= (+)-oreodine; r= (+)-rheodine; t= (-)-thebaine.

EXPERIMENTAL

The total crude alkaloid extracts were obtained from the aerial parts following the previous methods(3,4). Separation of the alkaloids was achieved by preparative TLC. The alkaloids were identified by comparing their physical and spectral data and TLC Rf values with authentic samples. Chromosome counts on seedling roots were carried out using standard Feulgen-stained root tip squash technique.

Acknowledgements: This work was supported by Istanbul University Research Fund, Project Number 386/230289.

REFERENCES

1. Phillipson, J. D., Saryar, G., Baytop, T., *Phytochemistry* **12**, 2431-2434 (1973).
2. Saryar, G., *Planta Med.*, **46**, 175-178 (1982).
3. Saryar, G., *Planta Med.*, **49**, 43-45 (1983).
4. Saryar, G., *Doğa Bilim Dergisi: Temel Bilim.*, **7**, 93-101 (1983).
5. Phillipson, J.D., Thomas, O.O., Gray, A.I., Saryar, G., *Planta Med.*, **41**, 105-118 (1981).
6. Saryar, G., Shamma, M., *Phytochemistry*, **25**, 2403-2406 (1986).

Accepted 03.09.1998