This communication deals with the adaptation of CCA test for rapid identification of arboviruses and reports the relative value of this procedure as compared to CF test.

A 10% (W/V) suspension of the infected infant or adult mouse brain in normal saline (0·9% NaCl) was made and centrifuged at 5,000 RPM for one hour at 4° C. The supernatant fluid was used as antigen. This antigen had shown a slight anti-complementary activity. Therefore, it was further diluted to 1 : 2 (sometimes 1 : 4) before use and was tested against two-fold dilutions (usually 1 : 16 to 1 : 1024) of homologous hyperimmune serum. The hyperimmune sera against arboviruses [Kyasanur Forest Disease (KFD), P 9605 strain; Kaisodi (KSO), G 14132 strain; Japanese encephalitis (JBE), Nakayama strain; West Nile (WN), E 101 or G 22886 strain; and dengue 2, P 23085 strain] were produced in adult mice.

Micro-CCA tests were done in hæmagglutination plastic plates according to the method described earlier.[3] CF testing was done by a micro-technique as described by Pavri *et al.*[4]

Seven hundred and fifty-two mouse brains were tested for evidence of arbovirus infection. Of these, 661 were positive in CCA for arbovirus and 655 in CF (Table I). Titres of hyperimmune sera with brain antigens, though not determined for end-points in all cases, were usually found to be two to four times higher in CCA than the CF.

TABLE I

Showing comparative results of CCA and CF tests with mouse brain antigens

Brain antigens	Total No. tested	No. positive with		Remark
		CCA	CF	
KFD ..	634	620	620	
KSO ..	10	0	0	
KSO/KFD	29	18	18	Positive for KSO
JBE/WN	8*	4	4	,, ,, JBE
		4	4	,, ,, WN
WN ..	24	4	4	
Dengue type 2	47	11	5	
Total No.	752	661	655	

* Antigens were tested with absorbed hyperimmune sera.

The CCA results indicated that KFD and KSO viruses could be distinguished from one another as well as from JBE-WN subgroup dengue virus. It was also possible to distinguish between the viruses of JBE-WN subgroup using JBE (Nakayama) and WN (E 101) hyperimmune sera absorbed as described by Clarke.[5] These results were similar to those observed with CF test by Pavri and Sheikh.[6]

These preliminary results suggest that CCA test may be used for rapid identification of arbovirus isolates. It was about as effective as the CF test.

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A NOTE ON THE PREVALENCE OF *MELOIDOGYNE INCOGNITA* (KOFOID & WHITE, 1919) CHITWOOD 1949, IN VARIOUS PLANTS OF RAJASTHAN

A SURVEY in the cultivated fields, orchards and gardens in different parts of Rajasthan for root-knot nematode infestations was started in 1966. Root samples of affected plants were collected and preserved in 5% formalin for detailed examination.

Many workers have reported host plants of *M. incognita* from different parts of the country.[2-4] From Rajasthan there are only few reports of *Meloidogyne* species.[3,6] This is the first extensive report of various new and known host plants found infested with *M. incognita* and extends its range of geographical distribution in Rajasthan. Infested plants were brought to the laboratory. Roots were gently washed to remove the adhering soil. Females were dissected out and pareneal sections were cut and mounted on slides. At least 10 to 15 sections from each host were examined for the morphology of the pareneal pattern. Identification of the species was made on the basis of key given by Taylor *et al.*[5]

Various host plants, locality and degree of infestation are given in Table I. It may be observed from Table I that *M. incognita* has been observed attacking about 30 genera of 20 different families in Rajasthan. The families; Cucurbitaceæ, Solanaceæ, Umbelli-

TABLE I

Host List of Meloidogyne incognita

S. No.	Host	Family	Locality	Infection rating
1	*Althaea rosea* (L.) Gav. Holly hock ..	Malvaceæ	Udaipur	++
2	*Antirrhinium majus* L. (Snap dragon) ..	Scrophulariaceæ	do.	+++
3	*Apium graveolens* L. (Celery) ..	Umbelliferæ	do.	++++
4	*Brassica oleracea* var. *botrytis* L. (Cauliflowor)	Cruciferæ	do.	++
5	*Brasscia oleracea* var. *Capitata* L. (Cabbage) ..	do.	do.	++
6	*Brassica oleracea* var. *Caulorapa* L. (Knol Khol)	do.	do.	++
7	*Carica papaya* L. (Papaw) ..	Caricaceæ	Gogunda	+++
8	*Capsicum frurescens* L. (Capsicum) ..	Solanaceæ	do.	+
9	*Cococasia antiquorum* Schoff. (Calocasia) ..	Aracaceæ	Udaipur	++
10	*Centaurea cyanus* L. (Cornflower) ..	Compositæ	do.	++
11	*Cucumis sativus* L. (Cucumber) ..	Cucurbitaceæ	Gogunda	++++
12	*Cynodon dactylon* L. Pers. (Bermuda grass) ..	Gramineæ	Udaipur	++
13	*Cyperus rotundus* L. (Nutgrass) ..	Cyperaceæ	do.	+
14	*Ficus carica* L. (Cultivated Fig.) ..	Moraceæ	Kota	++
15	*Helianthus annus* L. (Sunflower) ..	Compositæ	do.	+++
16	*Hibiscus esculentum* L. (Okra) ..	Malvaceæ	Gogunda	
17	*Impatiens balsamina* L. (Balsam) ..	Balsaminaceæ	Udaipur	++++
18	*Kochia* spp. ..	Chenepodiaceæ	do.	++
19	*Lagenaria sceraria* (Bottle gouard) ..	Cucurbitaceæ	do.	++++
20	*Lycopersicon esculentum* Mill. (Tomato) ..	Solanaceæ	Gogunda	++++
21	*Momordica charantia* L. (Bitter gouard) ..	Cucurbitaceæ	do.	++++
22	*Musa paradisica* L. (Cultivated Banana) ..	Musaceæ	Jaipur Udaipur	++
23	*Portulaca oleracea* L. (Pigweed) ..	Portulacaceæ	Udaipur	+++
24	*Psidium guajawa* L. (guava) ..	Myrtaceæ		+
25	*Punica granatum* L. (Pome granate) ..	Punicaceæ	Udaipur Khumbhalgarh	++ +
26	*Sesamum orientale* L. (Til.) ..	Pedaliaceæ	Alwar Udaipur	++ +
27	*Solanum melongena* L. (Egg fruit) ..	Solanaceæ	Shisod Udaipur	++++ ++++
28	*Vitis vinifera* L. (Grape) ..	Vitaceæ	Udaipur	+++
29	*Zea mays* L. (Maize) ..	Gramineæ	do.	++
30	*Zinnia elegans* L. (Zinnia) ..	Compositæ	do.	+

Arbitrary infection ratings: + Light. ++ Medium. +++ Heavy. ++++ Very heavy.

ferae and Balsaminaceæ have been found highly susceptible to *M. incognita*. Caricaceæ, Scrophulariaceæ, Compositæ, Malvaceæ, Portulacæceæ and Vitaceæ have been noticed susceptible. While the remaining 10 families given in Table I have been noticed less susceptible.

From the literature it appears that *Centaurea cyanus, Cynodon dactylon, Cyperus rotundus, Helianthus annus. Kochia* sp., *Punica granatum, Sesamum orientale* and *Psidium guajava* are the first host record of *M. incognita*. While in addition to these hosts *Althæa rosea*:

Antirrhynum majus; *Apium graveolens, Brassica oleracea* var. *Cauloropa*; *Ficus carica*; are the first host record of *M. incognita* from India. The localities of collection and host list indicate that this species is widely distributed in different soil conditions of Rajasthan and has wide host range.

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