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SrMV SCMV MDMV

TPIA DIBA DAS-ELISA

JGMV

(SCMV)

(pH) /

(PVP)

SCMV

Pennisetum americanum *Panicum miliaceum* *Avena sativa*

SCMV

Setaria italica *Hordeum vulgare* *Triticum aestivum*

Minipurification

/ / mg/ml A260/280

SCMV

(ISEM)

SDS-

SCMV

Western blotting PAGE

RT-PCR

KDa

SCMV

bp

SCMV R3 SCMV F3

SCMV

(Afsharifar, 1991; Moini & Izadpanah, 2001)

Zea mays L.

(Izadpanah, 1982; Izadpanah, 1985;
Afsharifar, 1991; Izadpanah & Kamran, 1995;
Masumi & Izadpanah, 1995)

(Mirhadi, 2001)

SCMV-MS (Maize SCMV
Shiraz)

SCMV

(Izadpanah, 1985)

Potyvirus

Iranian Johnsongrass Mosaic (IJMV)
(Masumi & Izadpanah, 2001; *Virus*
Masumi *et al.*, 2001)

Potyvirus

MDMV

(*Maize Dwarf Mosaic Virus*: MDMV)

(Moini & Izadpanah, 2001; Zare *et al.*, 2004a;
Zare *et al.*, 2004b)

(*Sugarcane Mosaic Virus*:

(*Sorghum Mosaic* SCMV)
:JGMV) *Virus*: SrMV)

(*Johnsongrass Mosaic Virus*

Potyvirus SCMV

(Shukla *et al.*, 1989)

MDMV SCMV

JGMV

SrMV

(Shukla *et al.*, 1989; Chen *et al.*, 2002;)

ZeMV (*Zea Mosaic Virus*)

(Seifers *et al.*, 2000)

-
1. Poaceae
 2. Poaceous potyviruses
 3. SCMV subgroup

(DAS-ELISA)

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°C

)

(

°C

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Awareness

Statefax-2100

(Technology

$R \geq X+3sd$

:R :sd :X)

$\geq 2X$ (

TPIA

(W/V) :

(1998) Dijkstra & deJager (1989) Sambrook *et al.*

(pH) /

(PVP)^r

(W/V)

(

)

PBST

(IgG-AP)

PBST

NBT/BCIP Fast red

(JGMV SrMV MDMV SCMV)

TPIA DIBA DAS-ELISA

DIBA

DSMZ

Sambrook

(1998) Dijkstra & de Jager (1998) *et al.*

Clark &

(1976) Adams

-
- 5. Double Antibody Sandwich - ELISA
 - 6. ELISA-reader
 - 7. Tissue Print Immunobinding Assay
 - 8. Nitrocellulose membrane
 - 9. Dot Immunobinding Assay

-
- 1. Freeze-drier
 - 2. Propagation & maintenance hosts
 - 3. Polyvinyl pyrrolidon
 - 4. Enzyme Linked Immuno Sorbent Assay (ELISA)

Glycine (Tris-base)
 (SDS /)
 /
 (IgG-AP)
 AP PBST
 Fast red
 NBT/BCIP
 (SDS-PAGE)
 Sambrook *et al.* (1998)
 °C (PBST)
 PBST
 PBST (IgG) (Tris-HCl)
 (PVP / Boric acid)
 PBST
 PBST (Tris-HCl /)
 (GAR-AP) SDS EDTA
 PBST (/)
 (AP- buffer))
) NBT () BCIP (

RT-PCR

) RT PCR)
 ()
 (1997) Yang & Mirkov
 SCMV R3 SCMV F3
 SCMV (CP)
 Yang & (1997) Mirkov
 (1998) Dijkstra & de Jager (1998)
 (EBIA)[†]
 Sambrook *et al.*

SCMV F3:5' TTTCTCACCAAGCTGGAA - 3'
 SCMV R3:5'AGCTGTGTGTCTCTGTATTCTC
 - 3'

SDS-PAGE

3. Goat anti-rabbit
4. Reverse Transcription-Polymerase Chain Reaction

1. Sodium Dodecyl Sulphate – Polyacrylamid Gel Electrophoresis
2. Electroblot Immunoassay or Western Blotting

PCR	
/ μ l	10X First Strand Buffer
μ l	mM MgCl ₂
μ l	mM (each) dNTP mix
μ l	pmole / μ l Forward primer(SCMV F3)
μ l	pmole / μ l Reverse primer(SCMV R3)
μ l	cDNA
/ μ l	u/ μ l Taq polymerase

RT-PCR	
/)	0/5X TBE
EDTA /	/
	(pH

Minipurification

(1986) Jensen *et al.*

/)	
/	/ pH
	(PVP Na-DIECA

) J-21B Beckman

rpm (

Triton X-100

(V/V)

(/ pH) / (W/V)

rpm

2. Final extension
3. Supernatant

RT-PCR	
Corbett) GP001 Palmcycler
	(Reaserch
	Total RNA
Trireagent	(Antibion) RNAWIZ
RNeasy Plant	(Sigma)
	(QIAGEN) Mini Kit
	cDNA
	(RT)
	RT
	RNase-free /
	$^{\circ}$ C
	RT $^{\circ}$ C
	$^{\circ}$ C cDNA

RT

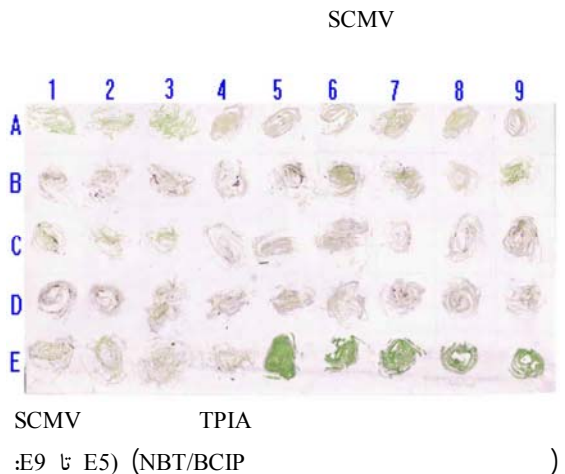
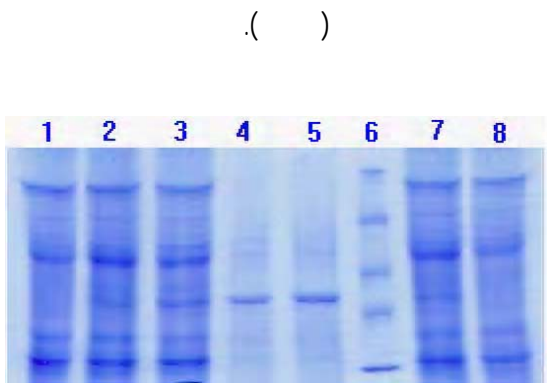
μ l	5X First strand buffer
μ l	mM (/ M) DTT
μ l	mM (each) dNTP mix
μ l	total RNA
μ l	pmole / μ l Reverse primer (SCMV R3)
/ μ l	u/ μ l RNase inhibitor enzyme
/ μ l	u/ μ l MMLV reverse transcriptase(RT)

, \

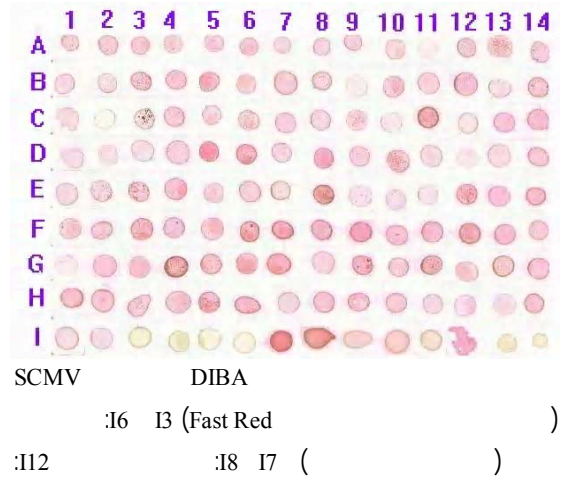
/	Taq
	RNase Free
	$^{\circ}$ C
	Taq
/	$^{\circ}$ C

1. Polymerase chain reaction

...
 :
 ()
 KDa
 SCMV
 KDa
 SCMV
 SDS-PAGE
 SCMV

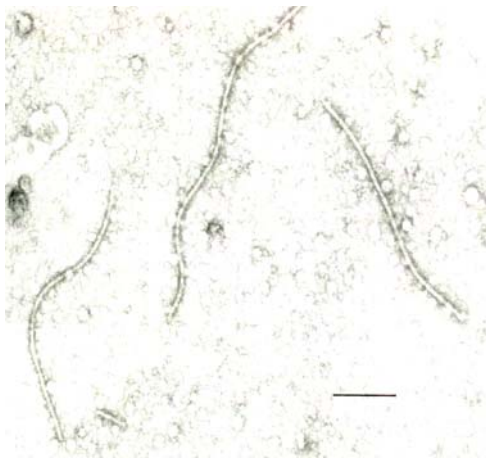
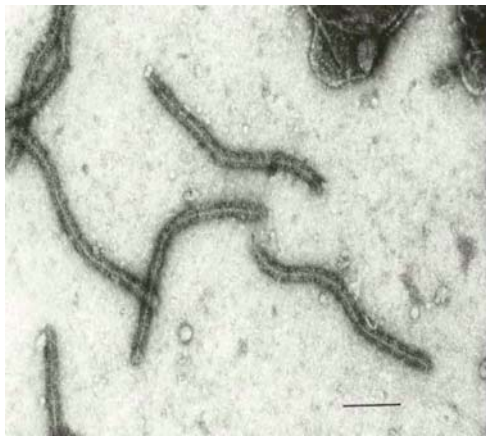


:) SDS-PAGE
 : SCMV :
) : (SCMV
 / : ((Fermentas



:) SCMV
 :
 (:

SCMV
 RT-PCR
 RT-PCR
 SCMV R3 F3
 SCMV
 SDS-PAGE
 KDa



DSMZ

SCMV

SCMV

SCMV

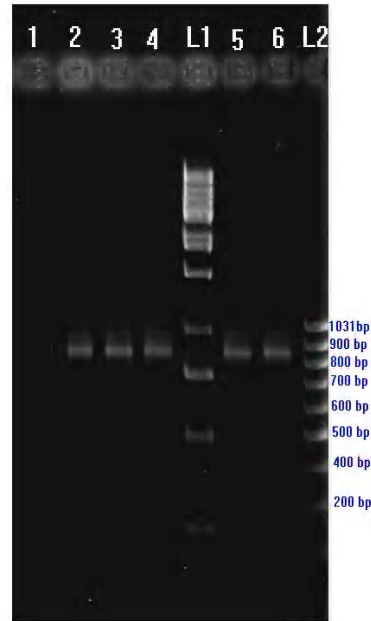
Panicum miliaceum

Pennisetum americanum Setaria italica

Triticum Sativum Hordeum Vulgare Avena Sativa

RT-PCR

() bp



RT-PCR

() :
) bp Kb :L1
 (bp Kb :L2

SCMV

()

SCMV

DMV SCMV

() JGMV SrMV

SCMV

ISEM

()

MDMV

MDMV TPIA DAS-ELISA

DIBA

SCMV

SCMV

SCMV JGMV SrMV

()

Izadpanah (Brunt *et al.*, 1997; Dragoljob *et al.*, 1999; Chen *et al.*, 2002)

(1991) Afsharifar (1987) Afsharifar

SCMV Masumi & (2001) Moini & Izadpanah (1991)

SCMV (2001) Izadpanah

SCMV

(Brunt *et al.*, 1997) MDMV SCMV

SCMV ()

MDMV

(Krstic & Tosic, 1995)

(Kuntze *et al.*, 1995; Oertel *et al.*, 1999)

SDS-PAGE SCMV (Chen *et al.*, 2002)

()

(SCMV MDMV

KDa Moini & (2005) Zare *et al.* (2001) Izadpanah

KDa MDMV

SCMV

(Jensen *et al.*, 1986)

(2001) Moini & Izadpanah

KDa MDMV

(2001) Masumi & Izadpanah

() SCMV-MS

() IJMV

/

(Brunt *et al.*, 1997; Dragoljob *et al.*, 1999)

SCMV

	SCMV	SCMV F3 Yang & Mirkov	RT-PCR SCMV R3 (1997)
(SCMV)		bp	
			(2003) Alegria <i>et al.</i>
		SCMV F4	SCMV F3
		SCMV-MS	(2001) Masumi & Izadpanah
		SCMV	
		ISEM	
			SCMV
//			
			SCMV
DSMZ		<i>Setaria italica</i> <i>Panicum miliaceum</i> <i>Hordeum vulgare</i> <i>Pennisetum americanum</i> <i>Avena sativa</i> <i>Triticum aestivum</i>	

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