“KLONING GEN PENYANDI COAT PROTEIN (V1) GEMINIVIRUS DARI TANAMAN CABAI (*Capsicum annuum* L)

ABSTRAK

Geminivirus menyerang tanaman yang bernilai ekonomis tinggi seperti *Capsicum annuum* L (Cabai) hingga menyebabkan penurunan hasil yang signifikan. Sampai saat ini belum ditemukan pengendalian yang tepat untuk mengatasi permasalahan tersebut. Oleh sebab itu perakitan *Capsicum annum* transgenik resisten Geminivirus merupakan salah satu cara untuk mengatasinya. Kloning gen penyandi *coat protein* (V1) merupakan bagian penting dalam perakitan *Capsicum annuum* tahan Geminivirus. Seperti yang diketahui, gen V1 adalah gen pengendali dalam proses enkapsidasi virus. Gen ini telah banyak berhasil digunakan dalam perakitan tanaman tahan. Penelitian ini telah diselesaikan di Laboratorium Bioteknologi dan Pemuliaan Tanaman Fakultas Pertanian, Universitas Andalas Padang. Kloning diawali dengan meligasikan gen V1 ke dalam plasmid pGEM®-T Easy Vector berdasarkan protokol promega. Selanjutnya plasmid ditransformasi menggunakan metode *heat shock*. Hasil *platting* menunjukkan adanya perbedaan warna koloni yang tumbuh pada media LB padat selektif dengan rincian 8 koloni berwarna biru muda (*pale blue colonies*) dan 40 koloni putih. Seluruh koloni transforman yang diuji melalui PCR menggunakan primer spesifik T7/SP6 dan V1 *Bam*HI/*Sma*I NT menunjukkan adanya 2 koloni positif yang mengandung gen penyandi *coat protein* yaitu isolat 25 NP TD2 berasal dari daerah Tanah Datar dan isolat dengan kode 25 berasal dari daerah Pesisir Selatan.. Hasil penjajaran sekuens menunjukkan bahwa keragaman dari gen *coat protein* sampel Pesisir Selatan tersebut rendah dengan persentase kecocokan sebesar 90%.

Kata Kunci *:Coat Protein (V1), kloning, Metode Kejut Panas, Geminivirus*

CLONING OF GEMINIVIRUS COAT PROTEIN GENE (V1) FROM CHILI PLANT (*Capsicum annuum* L)

ABSTRACT

Geminivirus affects plants which had high economic value like *Capsicum annuum* L (chili) and causes decreasing significant production. Theres no precise control to handle this problem yet. Because of that, developing of transgenic *Capsicum annum* resistance of Geminivirus is one of way to handle it. Cloning of coat protein (V1) gene was an important part for developing *Capsicum annum* Geminivirus resistant. As known, V1 gene was a regulator gene on virus encapsidation proccess. This gene had been succesfully used to develope resistance plant. This research was done at Laboratory of Biotechnology and Plant Breeding, Agriculture Faculty Andalas University Padang. Cloning has begun by ligation of V1 gene to pGEM®-T Easy Vector plasmid based on promega protocol. Furthermore plasmid had been transformed by using heat shock method. Platting result had shown any differences of colony colour which was grown on selective solid LB medium with details 8 colonies were pale blue and 40 colonies were white. All transformant colonies assayed by PCR using spesific primer T7/SP6 and V1 *Bam*HI/*Sma*I NT showed 2 positive colonies containing coat protein gene. They which was isolated 25 NP TD2 which was originated from Tanah Datar and 25 from Pesisir Selatan. Result of sequence alignment showed low variation on coat protein gene sequencing especially originated from Pesisir Selatan, showed 90% homology.

Keywords *:Coat Protein (V1), cloning, encapsidation, heat shock method, Geminivirus*