

# Performance comparison of GENTi™ Advanced Genomic DNA Extraction Kit and GENTi™ Advanced Plant Kit from mealworm (*Tenebrio molitor*)

## Experimental Conditions

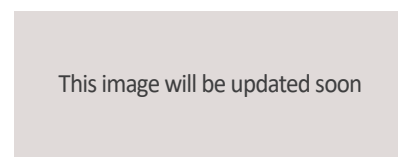
### Materials



GENTi™<sup>32</sup> Advanced Automated Nucleic Acid Extraction System [GTI032A]



GENTi™ Advanced Genomic DNA Extraction Kit [901-048A, 901-096A]



GENTi™ Advanced Plant Kit [904-048A, 904-096A]

## Sample & Extraction Information



Sample Mealworm (*Tenebrio molitor*)

Sample type	Normal	Infected
Sample amount	100 mg	80 mg
Target	Genomic DNA	
Elution volume	GENTi™ Advanced Genomic DNA Extraction kit	100 µl
	GENTi™ Advanced Plant kit	200 µl
Extraction protocol	Genomic DNA-High (both kits operated same protocol)	
Operating time	41' 10"	

## Protocol

### GENTi™ Advanced Genomic DNA Extraction Kit

\* For more details and methods, please refer to [the manual of GENTi™ Advanced Genomic DNA Extraction Kit](#).

#### Preparation of Proteinase K Solution

To obtain 20 mg/ml of proteinase K solution, add 1.2 ml of PK Storage Buffer to one bottle of lyophilized Proteinase K (24 mg), and gently invert to dissolve.

#### Sample Preparation

1. Transfer each frozen insect sample (normal or infected) and a 4 mm stainless bead into a 2 ml microcentrifuge tube (not provided).
2. Grind the sample using TissueLyser II for 1 min (frequency: 30/s).
3. Add 20 µl proteinase k solution (20 mg/ml) and 300 µl of Buffer CL to the 2 ml tube.
4. Vortex the tube for 30 s briefly. Be careful not to clump up the powder and make sure the buffer and sample are mixed well.
5. Centrifuge the tube shortly and incubate the sample using Thermo Mixer at 1,000 rpm for 30 min at 65 °C.
6. Vortex the tube vigorously and centrifuge the tube at 13,000 rpm for 5 min at room temperature.
7. Transfer 200 µl of the supernatant to 1<sup>st</sup> (or 7<sup>th</sup> well) well.
8. Dispense 10 µl of RNase A to 3<sup>rd</sup> (9<sup>th</sup>) well.

### GENTi™ Advanced Plant Kit

\* GENTi™ Advanced Plant Kit also followed the same sample preparation and protocol to extract genomic DNA from insect samples.

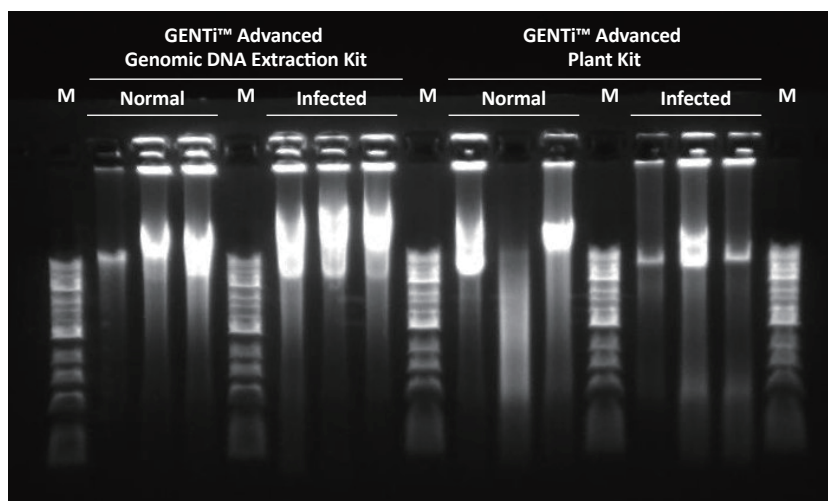
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## Results

Kit	Normal <i>Tenebrio molitor</i>			Infected <i>Tenebrio molitor</i>		
	Yield (μg)	A <sub>260</sub> /A <sub>280</sub>	A <sub>260</sub> /A <sub>230</sub>	Yield (μg)	A <sub>260</sub> /A <sub>280</sub>	A <sub>260</sub> /A <sub>230</sub>
GENTi™ Advanced Genomic DNA Extraction Kit	213.1	1.99	1.71	162.2	2.00	2.23
GENTi™ Advanced Plant Kit	193.2	2.07	1.65	27.0	1.79	1.65

**Table 1. DNA yield and purity**

Genomic DNA were extracted from *Tenebrio molitor* using GENTi™ Advanced Genomic DNA Extraction Kit & GENTi™ Advanced Plant Kit (n=3). The yield (μg) and purity (A<sub>260</sub>/A<sub>280</sub>, A<sub>260</sub>/A<sub>230</sub>) of the extracted nucleic acids were measured using NanoDrop™ 2000. GENTi™ Advanced Genomic DNA Extraction Kit mostly demonstrated superior yield and purity than GENTi™ Advanced Plant Kit.



**Figure 1. Agarose gel electrophoresis**

The extracted each gDNA was running electrophoresis (1% agarose gel with 0.5 X TBE, 100 V, 20 min). The size of the separated DNA fragment was confirmed through GENESTA™ 1Kb DNA ladder (GA-100), and the electrophoresis result was analyzed with SmartView Pro 1100 Imager System (UVCI-1100).

## Summary

- As a result of comparing the two kits, superior DNA extraction results were confirmed in the GENTi™ Advanced Genomic DNA Extraction Kit for *Tenebrio molitor*.
- Infected *Tenebrio molitor* is more suitable for genomic DNA extraction using the GENTi™ Advanced Genomic DNA Extraction Kit rather than GENTi™ Advanced Plant Kit.
- After lysis and centrifuge step, care must be taken to ensure that fat components or sediments that reduce DNA extraction efficiency are not mixed with the supernatant and separated step together.
- For normal *Tenebrio molitor*, if it is difficult to use GENTi™ Advanced Genomic DNA Extraction Kit, it can be replaced with GENTi™ Advanced Plant Kit.

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## Ordering Information

Cat. No.	Product	Size
GTI032A	<u>GENTi™ 32 Advanced Automated Nucleic Acid Extraction System</u>	1 Unit
901-048A	<u>GENTi™ Advanced Genomic DNA Extraction Kit (Tube Type)</u>	48T
901-096A	<u>GENTi™ Advanced Genomic DNA Extraction Kit (Plate Type)</u>	96T
904-048A	<u>GENTi™ Advanced Plant Kit (Tube Type)</u>	48T
904-096A	<u>GENTi™ Advanced Plant Kit (Plate Type)</u>	96T