DETECTION OF ZEIN GENE OF CORN (Zea mays) AS ANOTHER MATERIAL IN ARABICA COFFEE POWDER (Coffea arabica) WITH GEL–BASED PCR METHOD

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Background

Coffee adulteration
One of the other ingredients is corn

Gene Information
Corn gene and coffee gene are known

PCR gel base detection
An alternative to detecting the corn gene in coffee

Other Material Detection Methods
visual identification, analytical techniques using HPLC, IR spectrophotometric methods, photo–acoustic spectrometry, scanning electron microscopy, and thermal lens spectrometry

Objectives

to detect zein gene of Corn in Arabica coffee powder on the market with the Gel-based PCR method.

Methods

Sample collection
1

DNA Isolation
2

DNA Amplification (PCR)
3

DNA characterization (Agarose gel electrophoresis)
4

Data Analysis
5

Results

Primer sequence for the detection of corn and arabica coffee

<table>
<thead>
<tr>
<th>Organisms</th>
<th>Gene</th>
<th>Name</th>
<th>Sequence 5’-3’</th>
<th>Amplicon length (bp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>Zein protein</td>
<td>Zeina1-F</td>
<td>TGG CCA GCT AGC TAC AAC AAA CCG</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zeina1-R</td>
<td>GCG GGG TTA GCC GAA AAC TGCT</td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td>ClpP</td>
<td>Café1-F</td>
<td>TTC CGA AGT CCT GGA GAG</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Café1-R</td>
<td>CGG AGG ATA TCT CAA TCG</td>
<td></td>
</tr>
</tbody>
</table>

Visualization of electrophoresis gel agarose detection of corn in Arabica coffee powder

Description:
M: 100 bp DNA Ladder
Sample control: 1 and 2
Test samples: 3, 4, 5, 6, 7, 8, 9 and 10

Conclusion

the method of Gel-Based PCR can be used in detecting the gene Zein corn (Zea mays) in the arabica coffee powder (Coffea arabica) on the market

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