Pungency

PART THREE OF THE FOOD SCIENCE INFOGRAPHIC SERIES

The state or quality of being pungent, classically known as "spiciness", "hotness", or "heat" with regards to food.

MECHANISM

In many cases, pungent compounds illicit their reaction by triggering a specific receptor in the mouth, called TRPV1.

Pungent compounds activate TRPV1, causing an influx of ions into nerve cell interior. This sets off a cascade that leads to the pain sensation.

COMPONDS

There are various compounds in a variety of foods that illicit the pungent response.

- **Capsaicin**
  - Found in Chili Peppers
  - Classically measured in Scoville Heat Units
  - Water insoluble

- **Piperine**
  - Found in black pepper
  - Slightly water soluble

- **Allyl isothiocyanate**
  - Found in mustard, horseradish, and wasabi
  - Slightly water soluble

- **Gingerol**
  - Found in fresh ginger
  - Degraded by heat to form zingerone (sweeter)

The scale is based on how much sugar water it takes to neutralize the spicy taste.

<table>
<thead>
<tr>
<th>Scoville Heat Unit</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>16,000,000</td>
<td>Pure Capsaicin</td>
</tr>
<tr>
<td>5,000,000</td>
<td>Pepper Spray</td>
</tr>
<tr>
<td>500,000</td>
<td>Habanero Pepper</td>
</tr>
<tr>
<td>50,000</td>
<td>Cayenne Pepper</td>
</tr>
<tr>
<td>10,000</td>
<td>Serrano Pepper</td>
</tr>
<tr>
<td>2,000</td>
<td>Jalapeno Pepper</td>
</tr>
<tr>
<td>1,000</td>
<td>Poblano Pepper</td>
</tr>
<tr>
<td>100</td>
<td>Pimento Pepper</td>
</tr>
<tr>
<td>0</td>
<td>Bell Pepper</td>
</tr>
</tbody>
</table>

Sources:

Content and Design by Pat Polowsky