

**Date:** Thu, 15 Nov 2018 11:17:01  
**From:** Zhenzhou Qi <zhenzhou.qi@fsc.com>  
**To:** Sara Potts

Dear Sara Potts,

Thank you for submitting your application for the position of Analytical Technician at Food Secure Canada. I would like to invite you to attend an interview on June 30, at 9 a.m. at our laboratory in Mississauga, ON.

You will have an interview with the department manager, Eddie Will. The interview will last about 45 minutes and will be followed by the practical test as described in the attached document.

If the date or time of the interview is inconvenient, please contact me by phone (647-666-6666) or email (zhenzhou.qi@fsc.com) to arrange another appointment.

We look forward to seeing you.

Best regards,

Zhenzhou Qi



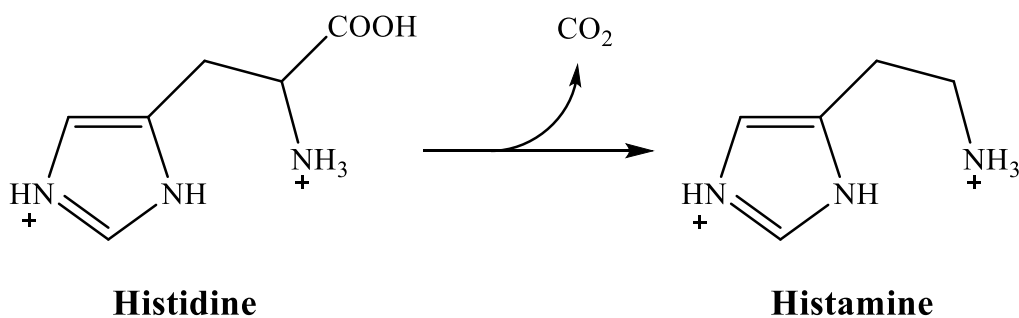
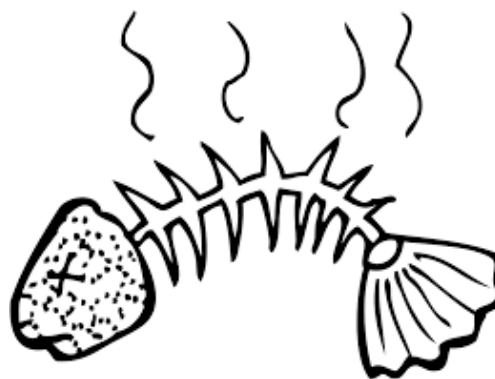
**FSC**  
**RAD**

Food  
Secure  
Canada  
Réseau  
pour une alimentation  
durable

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Figure from Ref. 1

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Rotten fish image from Ref. 2

There have been recent reports of consumer complaints involving customer illness after eating at a local sushi restaurant. Reported symptoms include nausea, vomiting, headaches, and burning throat, and a number of customers have been diagnosed with Scombroid poisoning. As a result, Food Secure Canada has taken samples of fish from the restaurant involved and those samples have been brought to the FSC analytical laboratory for analysis. Food Secure Canada suspects the restaurant of using expired fish – particularly tuna and salmon – instead of fresh fish, to lower their costs. It is known that when certain fish start to decompose, histidine (a naturally-occurring amino acid) is converted into histamine by bacteria with high histidine decarboxylase activity.

Biochemists in the FSC laboratory have extracted and purified the histidine and histamine components from fish samples. The extracts from 1 kg of fish were each isolated in their fully acidified forms, dissolved in distilled water and diluted to 1L to prepare the sample solutions for analysis. Unfortunately, two of the sample solutions were left un-labelled. It is your task to

identify the content of the solutions as either histidine or histamine and determine their respective concentrations. You must then determine whether the sampled fish is safe for consumption, based on the allowed histamine content of 100 ppm.<sup>3</sup>

**The laboratory equipment that will be made available to you includes the following:**

- two sample solutions of unknown content and concentration for analysis,
- an 0.01M NaOH solution,
- a calibrated pH meter,
- a burette with clamp and stand,
- a 25 mL volumetric pipette,
- a funnel and
- a 250 mL flask.

**Important note:** To preserve the quantities of purified samples, any titrations should be performed using 25 mL of the unknown sample solutions.

## References

1. Food Secure Canada(FSC); <https://inter pares.ca/content/food-secure-canada-fsc> (accessed July 25, 2018)
2. <http://i0.wp.com/clipartportal.com/wp-content/uploads/2018/12/bad-smell-clipart-black-and-white-4.jpg> (accessed Sept 9, 2019).
3. Pierina, V.; Maria, S.; Rosanna, T.; Giovanna, S. Histamine poisoning and control measures in fish and fishery products.; *Frontiers in Microbiology*. [Online]2014, 5, 1; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4172148/> (accessed July 25, 2018).