

## Salty Pits

How hospitable is your armpit?

Explore how different deodorants work.



### Materials and Preparation

Deodorants – use a non-antiperspirant variety such as Crystal Body Deodorant™ spray.

Ideally, find a liquid form like a spray or a roll-on.

Cotton swabs

Nutrient agar or bactoagar

Distilled water

Rubbing alcohol

Petri dishes – 6cm diameter work well

Bacterial sample for a control

(optional) a sweaty friend

Prepare agar plates for bacterial culture by melting agar in distilled water. Measure out the recommended concentration for your product (31 g/L for nutrient agar is common). Heat the solution in a microwave until all of the agar is dissolved, stirring from time to time. Let the solution cool to touch and pour enough to cover the bottom of the plate. Swirling the plate after you pour may help spread the agar completely. Prepare about 5 ml of agar for each 6 cm plate. You will need 2 agar plates for every sample or control tested.

### To do and notice

1. Pre-treat one of the plates with the deodorant. You can do this by wetting a cotton swab with the spray or liquid inside the roll-on and dabbing the plate gently with the wet solution. You can also carefully spray the product directly onto the agar. Let this solution soak into the agar completely.
2. Dip a cotton swab into the bacterial control and streak a line onto one treated and one untreated plate.
3. (optional) Take a sample from your (or your friend's) armpit by wiping it with a cotton swab. Streak this sample onto one treated and one untreated plate.
4. Store your plates in a warm place overnight upside-down (with the agar on top).
5. Check out your plates. Bacterial cultures look like wet, white spots. Where did bacteria grow?

### What's going on?

Pure deodorants reduce body odor by masking the smell or inhibiting bacterial growth. Several brands of deodorant contain alcohol or high salt concentrations, both of which prevent

bacteria from growing. In the picture above, areas marked with “+” have been treated with a deodorant and areas marked with “-“ have not. Notice that bacteria only grew in the areas marked “-“. Those anti-bacterial products must really work!

The main type of bacteria on your skin is *Staphylococcus epidermidis*, which grows in small, white colonies. Check out Todar's Online Textbook of Bacteriology for more information: <http://www.textbookofbacteriology.net/staph.html>