

TITLE: ATTACHMENT OF *SALMONELLA* SPP. ON THE SURFACE OF MANGOES, VARIETY TOMMY ATKINS.

AUTHORS: TERSAROTTO, C.H.¹; FRANCO, B.D.G.M.²

INSTITUTION: FOOD RESEARCH CENTER, UNIVERSITY OF SAO PAULO (AV. PROF. LINEU PRESTES, 580 – SÃO PAULO, SP BRAZIL)

ABSTRACT:

Foodborne illnesses caused by contaminated fruits with *Salmonella* spp. were reported in recent years. Cross-contamination of fruit surfaces may result in increased risks to consumers and the attachment hampers the elimination of these bacteria from the fruits. This study investigated the attachment of *Salmonella* spp. to the surface of mangoes, variety Tommy Atkins. The hydrophobicity of two *Salmonella* strains (*S. Enteritidis* ATCC 13076 and *S. Typhimurium* ATCC 14028) was evaluated vortexing a bacterial suspension (OD=1 at 400nm) with hydrocarbon hexadecane, and measuring the OD at 400nm. The capacity of biofilm formation was evaluated by adding bacterial suspensions to polystyrene plates, staining with crystal violet and spectrophotometer reading at 570nm. The attachment capacity was evaluated by spot inoculation to fragments of peel. Fragments (5x5cm) were scrapped to remove the adhered pulp, transferred to petri dishes, and inoculated with a drop of 50µL of the bacterial suspension (7 log/mL) Immediately after inoculation (time 0), and after 30 sec, 60 sec and 1 h of contact, the inoculated suspensions were aspirated and the region covered with 100 µl of PBS, immediately aspirated with a pipette and discarded. The procedure was repeated five times. The fragments were transferred to Falcon tubes containing 50mL of 0.1% peptone water, vortexed for 60s and held in ultrasonic bath for 5 minutes to remove the attached cells. The suspensions were submitted to serial decimal dilutions in 0.1% peptone water and spread on surface of XLD Agar selective medium. The hydrophobicity was 42.11% ± 5.37 for strain ATCC 13076 and 62.58% ± 7.97 for strain ATCC 1402, classified as “medium hydrophobicity”. Biofilm formation capacity of the strain 13076 was evaluated as “weak” and the strain 14028 was evaluated as “moderate”. Attachment of strain 13076 (3.50 ± 0.04 log CFU/mL) was similar to that of strain 14028 (3.4 ± 0.06 log CFU/mL). After one hour of exposure, the number of attached cells increased to 4.2 ± 0.06 log CFU/mL (strain 13076) and 4.3 ± 0.11 log CFU/mL (strain 14028). The findings indicate that *Salmonella* spp. is able to attach on mango surface and the number of attached cells increased with exposure time. These data may help producers and health agencies to develop quantitative risk assessments and establish proper measures to prevent outbreaks.

Keywords: *Salmonella* spp., attachment, mango

Development Agency: FAPESP and CAPES