

CHEESE INFESTING MITES:

EXPERIENCE IN A SMALL DAIRY IN UMBRIA (ITALY).



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INTRODUCTION. The presence of infesting arthropods in any agri-food manufacturing factory is unacceptable, as the risks associated with parasites include: spread of pathogens, contamination of work surfaces and products, direct damage to foodstuffs, occupational diseases and image damage. In particular, during the seasoning phase, hams and cheeses are frequently subjected to mite infestations, which erode the external surface, creating a dustiness that ends up devaluing the products themselves and also their quality, altering organoleptic characteristics (Fig. 1). We present the results of a study carried out in an Umbrian dairy, in order to verify the presence of mites infesting aged cheeses.

RESULTS AND CONCLUSIONS. The results showed the presence of 2 mite species:

- *Tyrophagus putrescentiae*, a very important pest from an economic point of view,
- *Glycyphagus domesticus*, important as a pathogenic species for humans, with the consequent possibility of developing diseases both in the sector operators and in the final consumers (Fig. 3).

T. putrescentiae were found on n°25 samples (70%); in n°15 (42%) this mite represents the only infesting species, while in n°10 (28%) it is present in mixed infestations with *G. domesticus*. N°11 cheeses (30%) were negative (Tab. 1). Although very limited, data show that the infestation by *T. putrescentiae* begins already after about a month of maturing, reaching high levels in the 5°-6° month of maturing. At this point begin to appear *G. domesticus*, testifying to the fact that this mite is not a primary pest of animal products, but generally complicates infestations caused by other species.

The use of a simple monitoring method, such as scotch test, allows to constantly check the status of the products; it also identifies not only the typically pest species, but also those potentially pathogenic to humans.

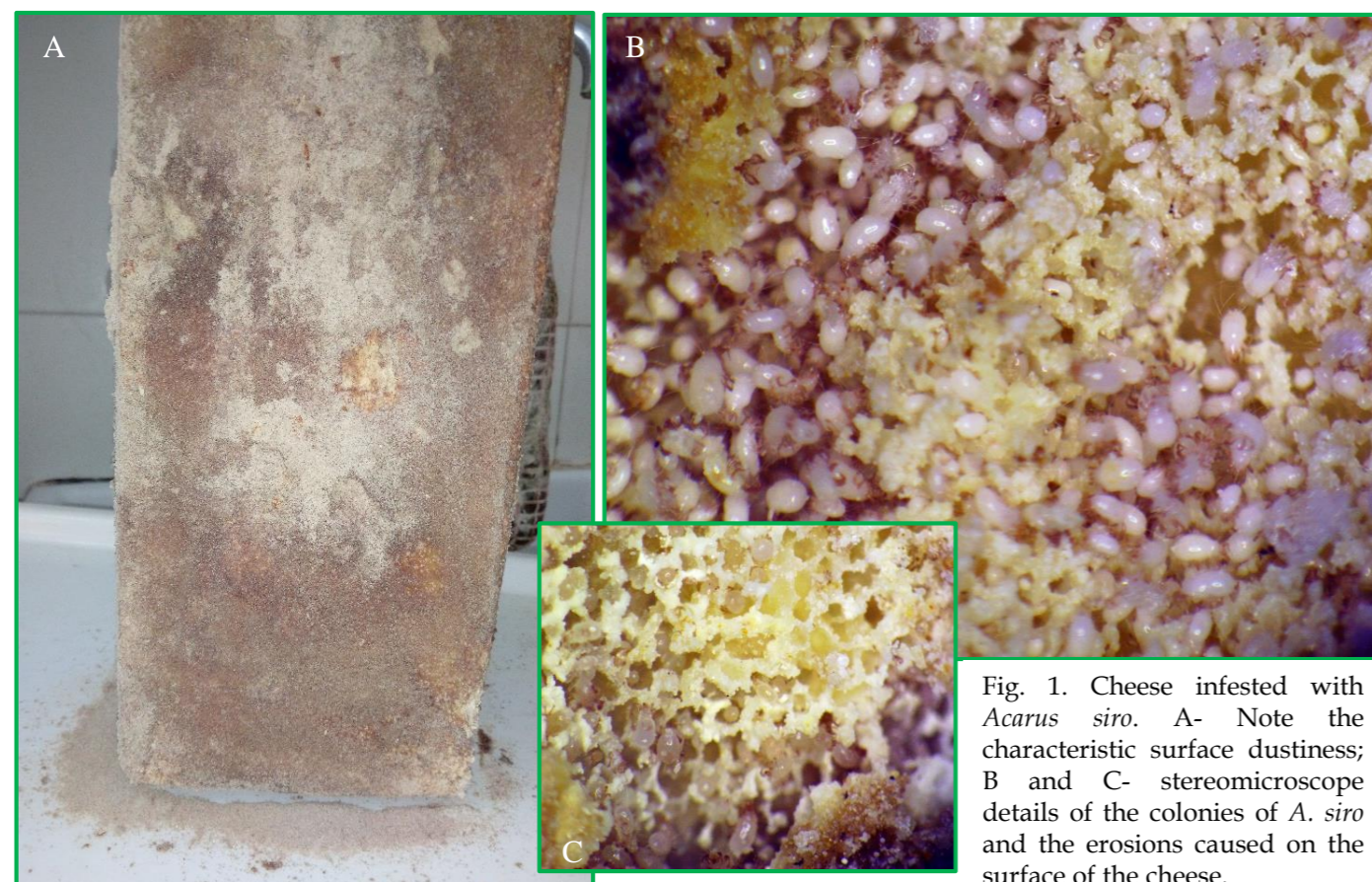


Fig. 1. Cheese infested with *Acarus siro*. A- Note the characteristic surface dustiness; B and C- stereomicroscope details of the colonies of *A. siro* and the erosions caused on the surface of the cheese.

Tab. 1: Sampling results, with the detail of the isolates mites and the entity's indication of infestation.

MONTH OF SAMPLING	COW MILK CHEESE	SHEEP MILK CHEESE	GOAT MILK CHEESE	MIXED CHEESE (Cow and sheep milk)
May	<i>T. putrescentiae</i> +++	<i>T. putrescentiae</i> +	<i>T. putrescentiae</i> +++	
	<i>T. putrescentiae</i> +	<i>T. putrescentiae</i> +++		
June	<i>T. putrescentiae</i> +	Negativo		
	<i>G. domesticus</i> +			
	Negativo	Negativo		
July	<i>T. putrescentiae</i> ++	Negativo		
	<i>G. domesticus</i> +++	Negativo		
	<i>T. putrescentiae</i> ++	Negativo		
August	<i>T. putrescentiae</i> +++	Negativo	Negativo	
	<i>G. domesticus</i> +			
September	<i>T. putrescentiae</i> +	<i>T. putrescentiae</i> +	<i>T. putrescentiae</i> +	
	<i>T. putrescentiae</i> +++	<i>T. putrescentiae</i> +		
	<i>G. domesticus</i> +			
October	<i>T. putrescentiae</i> +++	Negativo	<i>T. putrescentiae</i> +	
	<i>G. domesticus</i> +			
	<i>T. putrescentiae</i> +++	<i>T. putrescentiae</i> +++		
November	<i>T. putrescentiae</i> +++	<i>T. putrescentiae</i> +++		<i>T. putrescentiae</i> +++
	<i>G. domesticus</i> +	<i>G. domesticus</i> +		
December	<i>T. putrescentiae</i> +++	<i>T. putrescentiae</i> +++		<i>T. putrescentiae</i> +++

MATERIALS AND METHODS. This parasitological survey took place in a small dairy in Assisi (Umbria, Italy), in May-December 2019, sampling the cheeses present in the seasoning cell by scotch test (Fig. 2).

The samples were taken monthly on cow, sheep, goat or mixed cheeses. In total, n°36 forms of cheese were examined; n°3 scotch tests were carried out on each form on different areas, observed through the stereomicroscope and present mites were identified by optical microscope. The day and time of the withdrawals have not been agreed in advance with the operators of the dairy, in order to avoid manipulations on the cheeses.

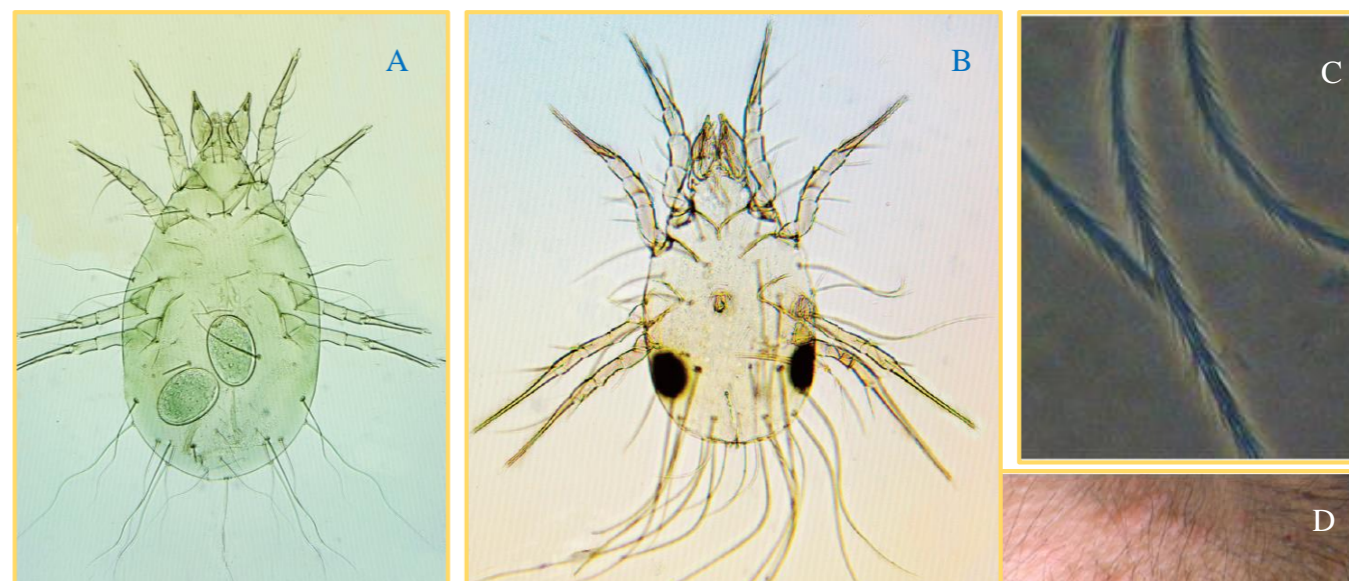


Fig. 3: A- female of *T. putrescentiae*; B- male of *G. domesticus*; C- multi-branched bristles of *G. domesticus* responsible for dermatological lesions in humans (D).

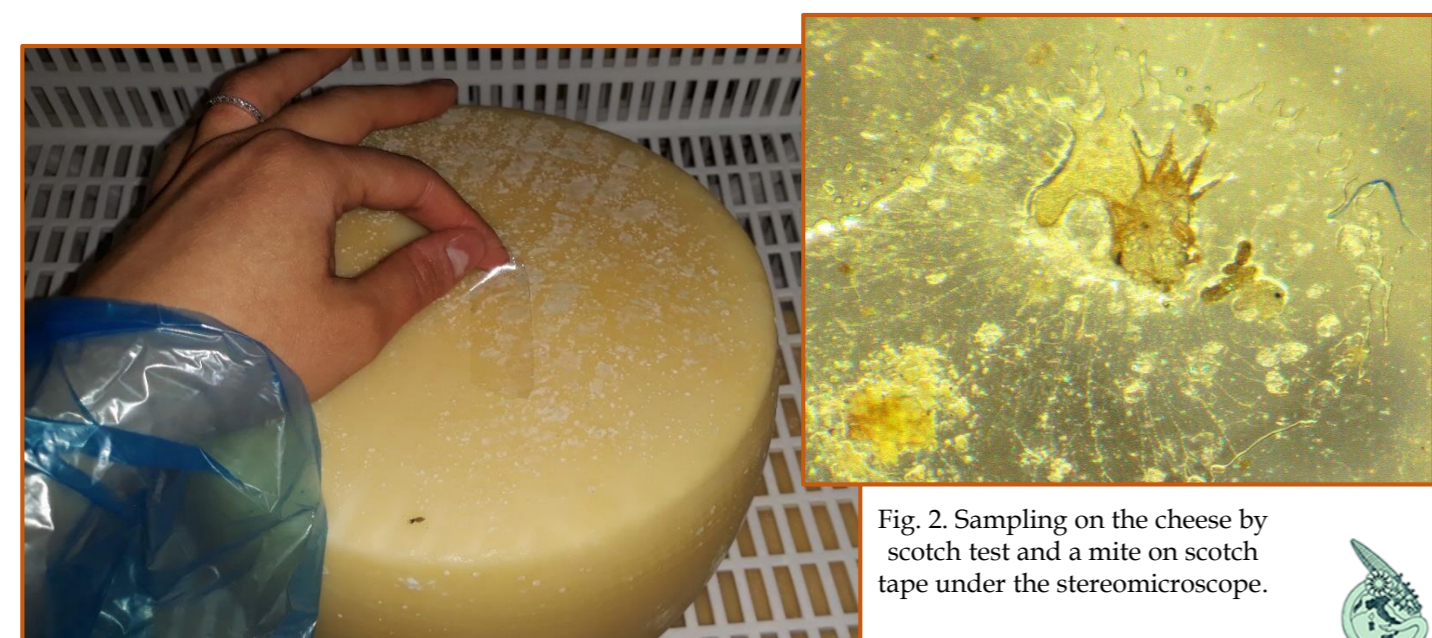


Fig. 2. Sampling on the cheese by scotch test and a mite on scotch tape under the stereomicroscope.