

**Materials, Physics and
Nanosciences (MPNS)**

Participating countries

AT, BE, CH, DE, DK, EL, ES, FI, FR,
IE, IL, IT, NL, PL, PT, RO, SK, SE, TR,
UK + JP, NZ

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COST Action no. TD0906

Biological Adhesives: from Biology to Biomimetics

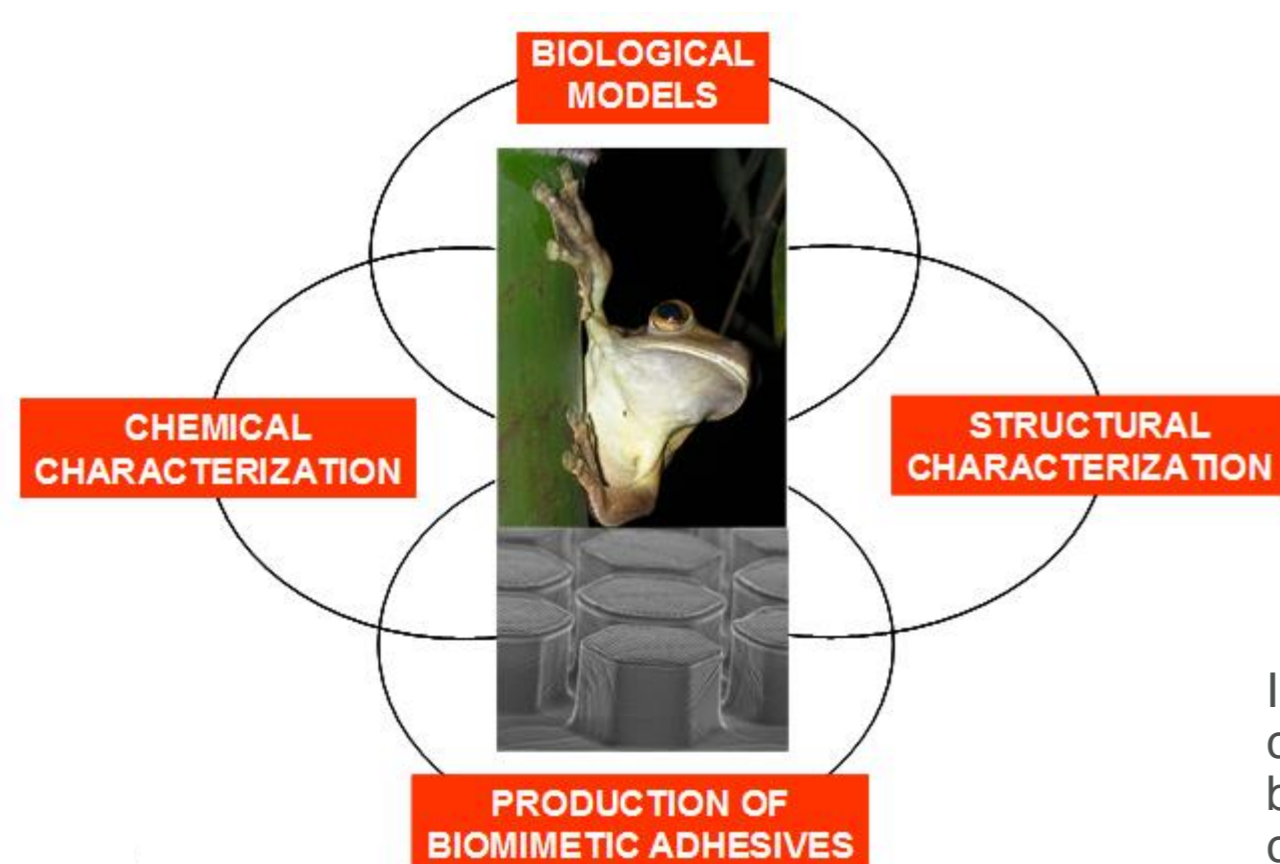
2010 | 2014

Objectives

- The main objective of the Action was to gain new understanding relating to the mode of action of biological adhesives so as to facilitate the development of synthetic counterparts with improved efficacy.

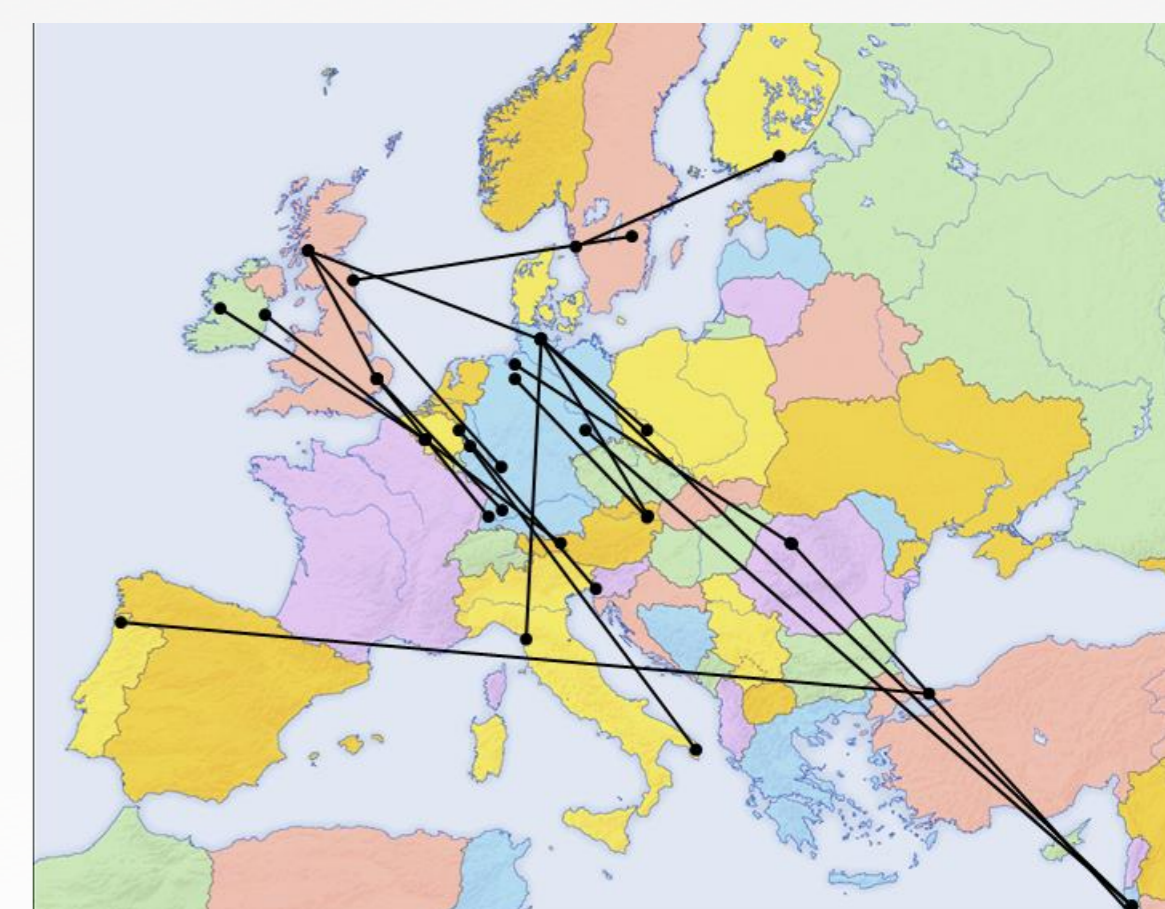
Main Achievements

- Several new bioadhesion model have been identified in organisms as diverse as bacteria, plants and animals. Multidisciplinary collaborations between research teams allowed the characterization, both chemical and structural, of these natural adhesives. In a few cases (frog, octopus, alga), biomimetic materials have been fabricated, incorporating the features identified to be critical in the adhesion process. These materials have then been characterized. Some specific applications have been identified, especially in the biomedical field. Development of novel technical adhesives, however, will be a long-term process.

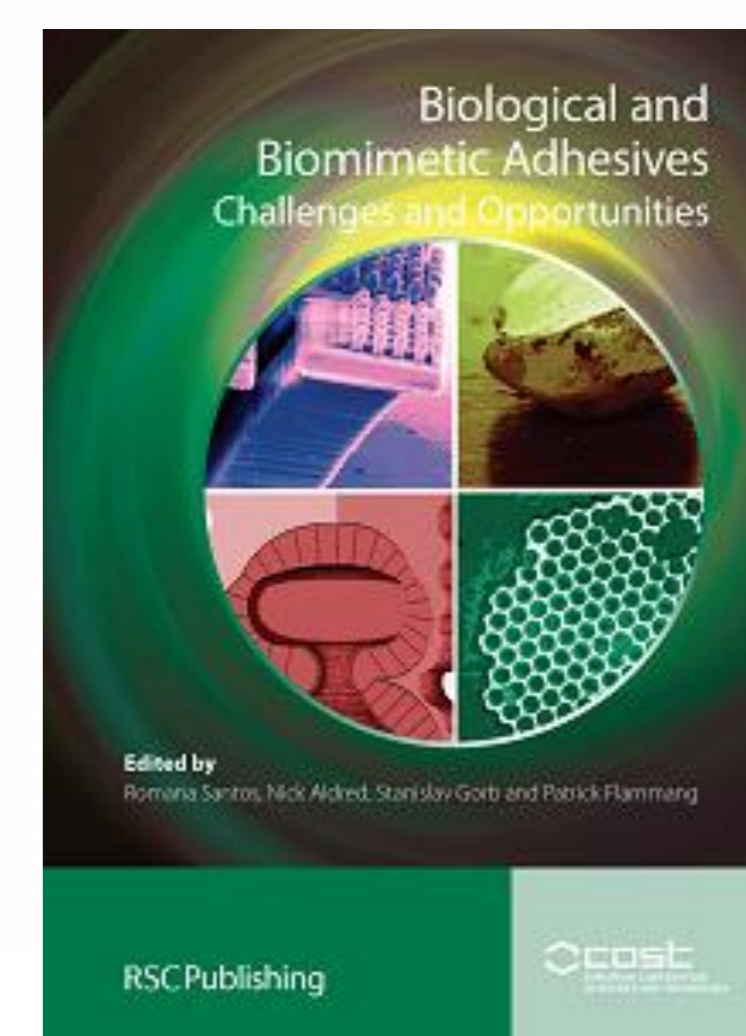


Inter-disciplinary in our Action as illustrated by the collaborations which aimed at the development of a bioinspired adhesive that works in humid and flooded conditions based on tree frog toe pads.

- One of the secondary objectives of our Action was the establishment of a scientific network platform stimulating communication and collaboration between European researchers in the field of biological and biomimetic adhesives. From a handful of researchers, this field has grown to become an integrated pan-European network. Our Action reached a total number of 178 individual participants (comprising 44% female and 51% ESR participants) from 22 countries.
- Since the beginning of the Action, we have organized 7 conferences and workshops, 34 short term scientific missions (STSMs), and 5 training schools. Our largest scientific meeting, the 1st International Conference on Biological and Biomimetic Adhesives, gave our Action visibility at the international level. A book based on the proceedings of this conference has been published by Royal Society of Chemistry Publishing.
- Thanks to our Action, new generation of young scientists has been trained in the topic of biological and biomimetic adhesives (more than 100 ESRs benefited from STSMs or training schools).
- Another goal was to reinforce academia-industry interaction at early stages of knowledge development. Our Action therefore went toward the industry through presentations at industry-oriented meetings and through the publications of papers arising industry interest for bioadhesion and informing about the European research in this area and our COST action.
- The number of Action members, of activities, of joint publications (75 up to now), and of applications to both EU and national programmes is a good indication of the strength of our Action and suggests that the field of bio-inspired adhesives will continue to develop in the future.



STSMs organized within the framework of the Action



Proceedings of the 1st International Conference on Biological and Biomimetic Adhesives



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