

MiSAC Annual Competition 2017

Report

The Antibiotic Crisis

The requirement of the 29th MiSAC Annual Competition was to produce information for a section of a new science web site for teenagers to promote a better understanding of the nature and consequences of the ever-growing occurrence of antibiotic resistance among bacteria. This maintained the well-established approach of basing the competition topic on a subject that is linked to school curricula but with requirements so framed as to draw students beyond the confines of the curriculum. MiSAC provided the special sponsorship for this year's competition.

The topic proved to be particularly popular. Entries were received from many newcomers to the competition as well as from our pool of regular participants. As usual, there were two entry groups: Key Stages 3 and 4 (Secondary 1/2 and 3/4 in Scotland). Entries came from 92 schools throughout the UK of which 19 made submissions to both entry groups. In total there were 564 entries consisting of 339 from KS3 (S1/2) and 225 from KS4 (S3/4). The entries to the KS4 (S3/4) group represented 40% of the total, a record level and almost double the encouraging level of recent years. The large majority of the 564 entries were individual submissions but a substantial proportion represented the work of groups of students, which meant that a total of 961 students participated in the competition.

The judging panel consisted of the officers of MiSAC and representatives of our regular sponsors. The judges looked for close adherence to the specified format of entry which included presentation on one A3 sheet (or two A4 sheets attached side-by-side), arranged in two parts. The first half of the entry required a summary of the main issues behind the increase in resistance of bacteria to antibiotics and suggestions for possible solutions. The second half had to be a description of the science behind some of the main issues. Suggestions for inclusion in both parts were provided. There was also a requirement to name one disease caused by bacteria and the genus and species of the causative organism.

Many hand- and computer-produced entries were presented to a high standard which made adjudication very challenging. On the whole, the stringent entry requirements were followed closely and entrants showed a good knowledge of the issues involved and understanding of the underlying science. In addition, and most encouragingly, there was a widespread understanding of the need for urgent action if infectious diseases are to continue to be successfully treated. Credit was given for the effective use of data such as illustrations, statistics and sources of further information, and for good design. Participants appeared to have enjoyed the experience and used imagination and humour to attract the interest of the intended teenage readership. A small but important point to be learnt in scientific writing is the need to observe the rules of nomenclature regarding use of upper and lower case initial letters for, respectively, genus and species, and italic font, e.g. *Escherichia coli*. Regarding grammar, there is also a need to appreciate the correct use of the singular and plural case, e.g. bacterium (singular) and bacteria (plural).

This year a higher proportion of schools than last year's disappointing level (30% vs 25%) did not fully observe the rules about attaching two A4 sheets side-by-side and labelling the back of the entry with the identification details necessary for keeping track of nearly 600 entries. For example, in some submissions, two A4 sheets were held together by only a paper clip and had identification details on only one of the two sheets; one school neither submitted an entry form nor added any identification details. The organisers remedied the omissions where possible so as not to disadvantage the students but this help severely hampered the administration of the competition and will be reconsidered in the future.

Money awards totalling £1,265 were made to prize winners and their establishments, and some entries were awarded a commendation. Each participating establishment will receive some microbiology teaching resources and all students who did not receive an award will have their contribution acknowledged by receiving a certificate of entry.

MiSAC warmly thanks the students for making the competition such a success and their teachers for their support and messages of appreciation. We hope that students' interests in microbiology have been stimulated and we look forward to a similarly strong response to the 2018 MiSAC Annual Competition which will be entitled *The Commercial Uses of Fungi* and generously sponsored by the British Mycological Society.

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