```
##
##  Some coefficient for 'Oxygen electrode measurements' were attached
```

## Session information

```
##  setting  value
##  version  R version 3.5.0 (2018-04-23)
##  system   x86_64, darwin15.6.0
##  ui       X11
##  language (EN)
##  collate  en_US.UTF-8
##  tz       Australia/Sydney
##  date     2019-02-07
##
##  package     * version  date       source
##  assertthat    0.2.0    2017-04-11 CRAN (R 3.5.0)
##  backports     1.1.2    2017-12-13 CRAN (R 3.5.0)
##  base        * 3.5.0    2018-04-24 local
##  bindr         0.1.1    2018-03-13 CRAN (R 3.5.0)
##  bindrcpp      0.2.2    2018-03-29 CRAN (R 3.5.0)
##  broom       * 0.5.0    2018-07-17 CRAN (R 3.5.0)
##  cellranger    1.1.0    2016-07-27 CRAN (R 3.5.0)
##  cli           1.0.1    2018-09-25 CRAN (R 3.5.0)
##  colorspace    1.3-2    2016-12-14 CRAN (R 3.5.0)
##  compiler      3.5.0    2018-04-24 local
##  crayon        1.3.4    2017-09-16 CRAN (R 3.5.0)
##  curl          3.2      2018-03-28 CRAN (R 3.5.0)
##  datasets    * 3.5.0    2018-04-24 local
##  devtools    * 1.13.6   2018-06-27 CRAN (R 3.5.0)
##  digest        0.6.18   2018-10-10 cran (@0.6.18)
##  dplyr       * 0.7.8    2018-11-10 cran (@0.7.8)
##  evaluate      0.11     2018-07-17 CRAN (R 3.5.0)
##  extrafont     0.17     2014-12-08 CRAN (R 3.5.0)
##  extrafontdb   1.0      2012-06-11 CRAN (R 3.5.0)
##  forcats     * 0.3.0    2018-02-19 CRAN (R 3.5.0)
##  fudukue     * 0.1.0    2018-07-03 Github (KeachMurakami/fudukue@a6dd84a)
##  ggplot2     * 3.1.0    2018-10-25 CRAN (R 3.5.0)
##  glue          1.3.0    2018-07-17 cran (@1.3.0)
##  googleway   * 2.7.1002 2018-11-11 Github (SymbolixAU/googleway@a9bbd33)
##  graphics    * 3.5.0    2018-04-24 local
##  grDevices   * 3.5.0    2018-04-24 local
##  grid          3.5.0    2018-04-24 local
##  gtable        0.2.0    2016-02-26 CRAN (R 3.5.0)
##  haven         1.1.2    2018-06-27 CRAN (R 3.5.0)
##  hms           0.4.2    2018-03-10 CRAN (R 3.5.0)
##  htmltools     0.3.6    2017-04-28 CRAN (R 3.5.0)
##  htmlwidgets   1.3      2018-09-30 CRAN (R 3.5.0)
##  httpuv        1.4.5    2018-07-19 CRAN (R 3.5.0)
##  httr          1.3.1    2017-08-20 CRAN (R 3.5.0)
##  jsonlite      1.5      2017-06-01 CRAN (R 3.5.0)
##  kagari      * 0.1.0    2018-07-18 Github (KeachMurakami/kagari@6f2bc3c)
##  knitr       * 1.20     2018-02-20 CRAN (R 3.5.0)
##  later         0.7.5    2018-09-18 CRAN (R 3.5.0)
```

```
##   lattice       0.20-35   2017-03-25 CRAN (R 3.5.0)
##   lazyeval      0.2.1     2017-10-29 CRAN (R 3.5.0)
##   lubridate   * 1.7.4     2018-04-11 CRAN (R 3.5.0)
##   magrittr    * 1.5       2014-11-22 CRAN (R 3.5.0)
##   MASS        * 7.3-50    2018-04-30 CRAN (R 3.5.0)
##   memoise       1.1.0     2017-04-21 CRAN (R 3.5.0)
##   methods     * 3.5.0     2018-04-24 local
##   mime          0.6       2018-10-05 cran (@0.6)
##   modelr        0.1.2     2018-05-11 cran (@0.1.2)
##   munsell       0.5.0     2018-06-12 CRAN (R 3.5.0)
##   nlme          3.1-137   2018-04-07 CRAN (R 3.5.0)
##   pillar        1.3.0     2018-07-14 CRAN (R 3.5.0)
##   pkgconfig     2.0.2     2018-08-16 CRAN (R 3.5.0)
##   plyr        * 1.8.4     2016-06-08 CRAN (R 3.5.0)
##   promises      1.0.1     2018-04-13 CRAN (R 3.5.0)
##   purrr       * 0.2.5     2018-05-29 CRAN (R 3.5.0)
##   R6            2.3.0     2018-10-04 cran (@2.3.0)
##   Rcpp          1.0.0     2018-11-07 cran (@1.0.0)
##   readr       * 1.1.1     2017-05-16 CRAN (R 3.5.0)
##   readxl        1.1.0     2018-04-20 CRAN (R 3.5.0)
##   rlang         0.3.0.1   2018-10-25 cran (@0.3.0.1)
##   rmarkdown     1.10      2018-06-11 cran (@1.10)
##   rprojroot     1.3-2     2018-01-03 CRAN (R 3.5.0)
##   rstudioapi    0.8       2018-10-02 CRAN (R 3.5.0)
##   Rttf2pt1      1.3.7     2018-06-29 CRAN (R 3.5.0)
##   rvest         0.3.2     2016-06-17 CRAN (R 3.5.0)
##   scales        1.0.0     2018-08-09 CRAN (R 3.5.0)
##   shiny         1.2.0     2018-11-02 cran (@1.2.0)
##   soroban     * 0.1.0     2018-04-25 Github (KeachMurakami/soroban@b7399d4)
##   stats       * 3.5.0     2018-04-24 local
##   stringi       1.2.4     2018-07-20 CRAN (R 3.5.0)
##   stringr     * 1.3.1     2018-05-10 cran (@1.3.1)
##   tibble      * 1.4.2     2018-01-22 CRAN (R 3.5.0)
##   tidyr       * 0.8.2     2018-10-28 cran (@0.8.2)
##   tidyselect    0.2.5     2018-10-11 cran (@0.2.5)
##   tidyverse   * 1.2.1     2017-11-14 CRAN (R 3.5.0)
##   tools         3.5.0     2018-04-24 local
##   utils       * 3.5.0     2018-04-24 local
##   withr         2.1.2     2018-03-15 CRAN (R 3.5.0)
##   xml2          1.2.0     2018-01-24 CRAN (R 3.5.0)
##   xtable        1.8-3     2018-08-29 CRAN (R 3.5.0)
##   yaml          2.2.0     2018-07-25 cran (@2.2.0)
```

## Title & Authors

- Title:

  - TITLE

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- Running title:

  - SHORT TITLE

1 **Abstract** (< 200 words)

2 **Keywords**

3 Cytochrome $b_6f$, Photosynthetic acclimation, Reversibility of photosynthesis, Fluctuating

4 light

5 **Abbreviations**

6 cyt-bf: cytochrome $b_6f$ complex, $C_i$: intercellular $CO_2$ partial pressure, $g_s$: stomatal conduc-

7 tance, LMA: leaf mass per area, $P_{max}$: maximum photosynthetic $O_2$ evolution rate, $P_n$: net

8 photosynthetic $CO_2$ fixation rate, PSII: photosystem II

**Author contributions**

K.M. designed the study, conducted experiments, analysed data and wrote the manuscript.

M.R.B. supervised MIMS measurements and made critical revision of the manuscript.

W.S.C. designed the study and wrote the manuscript.

**Disclosures**

The authors have no conflicts of interest to declare.

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## 21 List of Figures

## 22 **References**