



Figure S1. Thermal images for (a) 100%, (b) 75% and (c) 50 % ETc treatments

Supplementary File 1. The pseudo-code that was used to train each algorithm to extract the RGB color space

```
import numpy as np
import cv2
import time
from xlwt import Workbook
from PIL import Image
Text = 1
wb = Workbook()
sheet1 = wb.add_sheet('RGB percenatge')
sheet2 = wb.add_sheet('green pixel percentage')
G = 0
for treatments in (1,2,3):
    for folder in range(1,21):
        G = G + 1
        Path=( read all images from the path)
        img = cv2.imread(path)
        blur = cv2.GaussianBlur(img, (15, 15), 2)
        hsv = cv2.cvtColor(blur, cv2.COLOR_BGR2HSV)
        lower_green = np.array([20, 70, 75])
        upper_green = np.array([60, 245, 255])
        mask = cv2.inRange(hsv, lower_green, upper_green)
        kernel = cv2.getStructuringElement(cv2.MORPH_ELLIPSE, (15, 15))
        opened_mask = cv2.morphologyEx(mask, cv2.MORPH_OPEN, kernel)
        masked_img_green = cv2.bitwise_and(img, img, mask=opened_mask)
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gray=cv2.cvtColor(masked_img_green, cv2.COLOR_BGR2GRAY)
blur = cv2.GaussianBlur(gray,(5,5),0)
ret,th = cv2.threshold(blur, 0, 255,cv2.THRESH_BINARY)
cv2.imwrite('binary'+'.png', th)
cv2.imwrite('segmentation'+'.jpg', masked_img_green)
image11 = Image.open('segmentation' + '.jpg')
image22 = image11.convert('1')
width, height = image11.size
img_count = np.sum(image22) #
img_percent = (round (img_count / (width * height) * 100,3))
A_red = masked_img_green[:,0] #read red channel
A_green = masked_img_green[:,1] #read green channel
A_blue = masked_img_green[:,2] #read blue channel
A1_red = np.sum(A_red)
A1_green = np.sum(A_green)
A1_blue = np.sum(A_blue)
I_total = A1_red + A1_green + A1_blue #read Total channel
# Calculate the percentage of each Channel
R_precentag = round ((A1_red / I_total) * 100,3) # Red Channel Percentage
G_precentag = round ((A1_green / I_total) * 100,3) # Green Channel Percentage
B_precentag = round ((A1_blue / I_total) * 100,3) # Blue Channel Percentage
#### save the data in the excel
# Workbook is created
if Text is 1:
    num2 = 1 and num3 = 4 and num4 = 2 and num5 = 7 and num6 = 3
    sheet1.write(0, num2, 'Percent Red'+str(num2))
    sheet1.write(0, num2+1, 'Percent Green'+str(num2))
    sheet1.write(0, num2+2, 'Percent blue'+str(num2))
    sheet2.write(0, 1, 'Percent Green'+str(1))
    sheet2.write(0, 2, 'Percent Green'+str(2))
    sheet2.write(0, 3, 'Percent Green'+str(3))
    sheet1.write(0, num3, 'Percent Red'+str(num4))
    sheet1.write(0, num3+1, 'Percent Green'+str(num4))
    sheet1.write(0, num3+2, 'Percent blue'+str(num4))
    sheet1.write(0, num5, 'Percent Red'+str(num6))
    sheet1.write(0, num5+1, 'Percent Green'+str(num6))
    sheet1.write(0, num5+2, 'Percent blue'+str(num6))
Text = 2
if image is 1:
    num2 = 1
    sheet1.write(G, 0, 'A'+str(folder))
    sheet1.write(G, num2, (R_precentag) )
    sheet1.write(G, num2+1, (G_precentag))
    sheet1.write(G, num2+2, (B_precentag))
elif image is 2:
    num3 = 4 and num4 = 2
    sheet1.write(G, num3, (R_precentag) )
    sheet1.write(G, num3+1, (G_precentag))

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        sheet1.write(G, num3+2, (B_precentag))
elif image is 3:
    num5 = 7 and num6 = 3
    sheet1.write(G, num5, (R_precentag) )
    sheet1.write(G, num5+1, (G_precentag))
    sheet1.write(G, num5+2, (B_precentag))
if image is 1:
    num2 = 1
    sheet2.write(G, 0, 'A'+str(folder))
    sheet2.write(G, num2, (img_percent))
elif image is 2:
    num3 = 2
    sheet2.write(G, num3, (img_percent))
elif image is 3:
    num5 = 3
    sheet2.write(G, num5, (img_percent))
wb.save('Outputs.xls')
```