In [6]:
```
import numpy as np
```

In [7]:
```
ones_arr = np.ones((3,3))
```

In [8]:
```
ones_arr
```

Out[8]:
```
array([[1., 1., 1.],
       [1., 1., 1.],
       [1., 1., 1.]])
```

In [9]:
```
ones_arr = np.ones((5,5),dtype=int)
```

In [10]:
```
ones_arr
```

Out[10]:
```
array([[1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1]])
```

In [11]:
```
zeros_arr = np.zeros((3,3),dtype = int)
```

In [12]:
```
zeros_arr
```

Out[12]:
```
array([[0, 0, 0],
       [0, 0, 0],
       [0, 0, 0]])
```

In [13]:
```
ones_arr
```

Out[13]:
```
array([[1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1]])
```

In [14]:
```
ones_arr*255
```

Out[14]:
```
array([[255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255],
       [255, 255, 255, 255, 255]])
```

In [15]:
```
zeros_arr
```

Out[15]:
```
array([[0, 0, 0],
       [0, 0, 0],
       [0, 0, 0]])
```

In [16]:
```
ones_arr
```

Out[16]:
```
array([[1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1],
       [1, 1, 1, 1, 1]])
```

In [17]:
```
import matplotlib.pyplot as plt
```

In [18]:
```
%matplotlib inline
```

In [19]:
```
from PIL import Image  # python imaging library
```

In [20]:
```
#flower_img = Image.open('C:\Users\Rachana Jena\Downloads\flower.jpeg'))
```

In [21]:
```
flower_img = Image.open(r'C:\Users\Rachana Jena\OneDrive\Pictures\flower.jpeg')
```

In [22]:
```
flower_img
```

Out[22]:

In [23]:
```
#my_img = Image.open(r'C:\Users\Rachana Jena\OneDrive\Pictures\flower.jpeg')
```

In [24]:
```
#my_img
```

In [25]:
```
type(flower_img)
```

Out[25]: PIL.JpegImagePlugin.JpegImageFile

In [26]:
```
flower_arr = np.asarray(flower_img)
flower_arr
```

Out[26]:
```
array([[[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       ...,

       [[69, 76, 68],
        [62, 69, 61],
        [47, 54, 46],
        ...,
        [61, 59, 60],
        [70, 68, 69],
        [73, 71, 72]],

       [[71, 78, 70],
        [64, 71, 63],
        [48, 55, 47],
        ...,
        [61, 59, 60],
        [70, 68, 69],
        [73, 71, 72]],
```

```
       [[73, 80, 72],
        [65, 72, 64],
        [49, 56, 48],
        ...,
        [60, 58, 59],
        [69, 67, 68],
        [73, 71, 72]]], dtype=uint8)
```

In [27]:
```
type(flower_arr)
```

Out[27]:
```
numpy.ndarray
```

In [28]:
```
flower_arr.shape
```

Out[28]:
```
(900, 1440, 3)
```

In [29]:
```
plt.imshow(flower_arr)
```

Out[29]:
```
<matplotlib.image.AxesImage at 0x29502f65a30>
```

In [30]:
```
flower_red = flower_arr.copy()
```

In [31]:
```
flower_red
```

Out[31]:
```
array([[[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       ...,

       [[69, 76, 68],
        [62, 69, 61],
        [47, 54, 46],
        ...,
        [61, 59, 60],
        [70, 68, 69],
        [73, 71, 72]],

       [[71, 78, 70],
        [64, 71, 63],
        [48, 55, 47],
        ...,
        [61, 59, 60],
        [70, 68, 69],
        [73, 71, 72]],
```

```
       [[73, 80, 72],
        [65, 72, 64],
        [49, 56, 48],
        ...,
        [60, 58, 59],
        [69, 67, 68],
        [73, 71, 72]]], dtype=uint8)
```

In [32]:
```
flower_arr == flower_red
```

Out[32]:
```
array([[[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       ...,

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],

       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]],
```

```
       [[ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True],
        ...,
        [ True,  True,  True],
        [ True,  True,  True],
        [ True,  True,  True]]])
```

In [33]:
```
plt.imshow(flower_red)
```

Out[33]:
```
<matplotlib.figure.AxesImage at 0x29503061190>
```

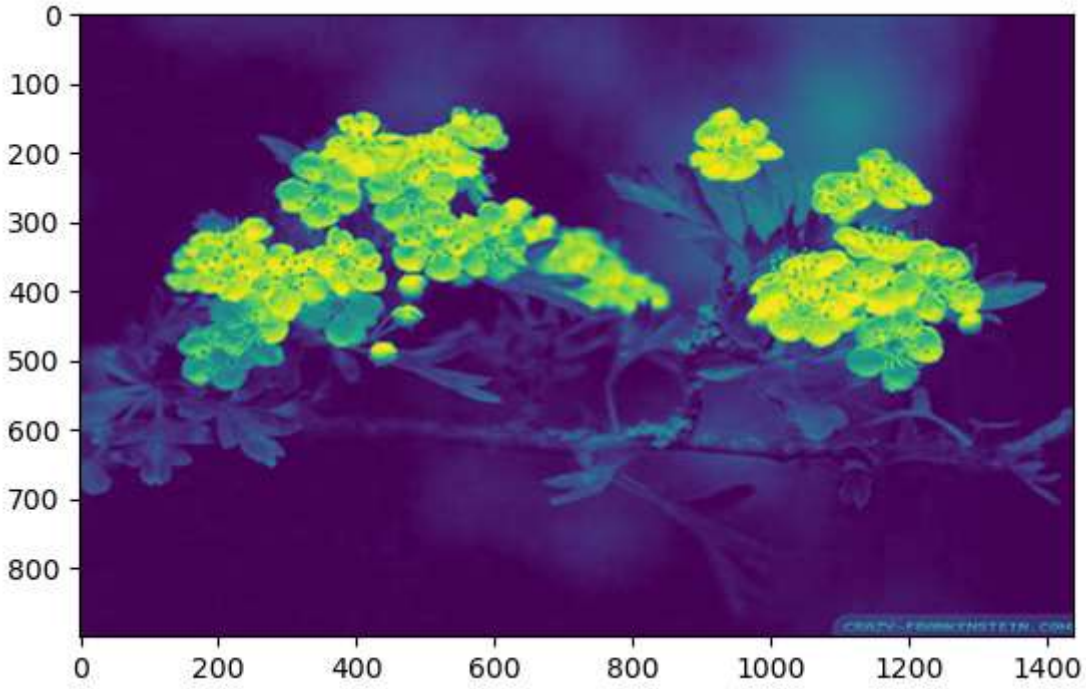
In [34]:
```
flower_red.shape
```

Out[34]:
```
(900, 1440, 3)
```

In [35]:
```
# R G B

plt.imshow(flower_red[:,:,0])
```

Out[35]: <matplotlib.image.AxesImage at 0x29503027950>

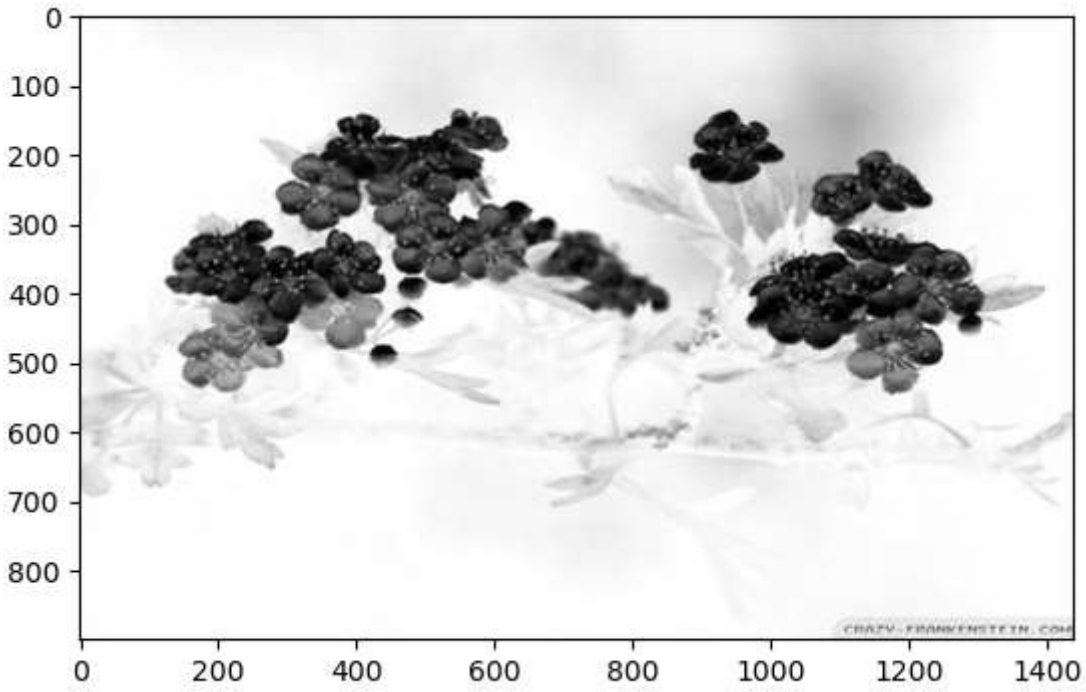


In [36]:
```
flower_red[:,:,0]
```

Out[36]:
```
array([[ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       ...,
       [69, 62, 47, ..., 61, 70, 73],
       [71, 64, 48, ..., 61, 70, 73],
       [73, 65, 49, ..., 60, 69, 73]], dtype=uint8)
```

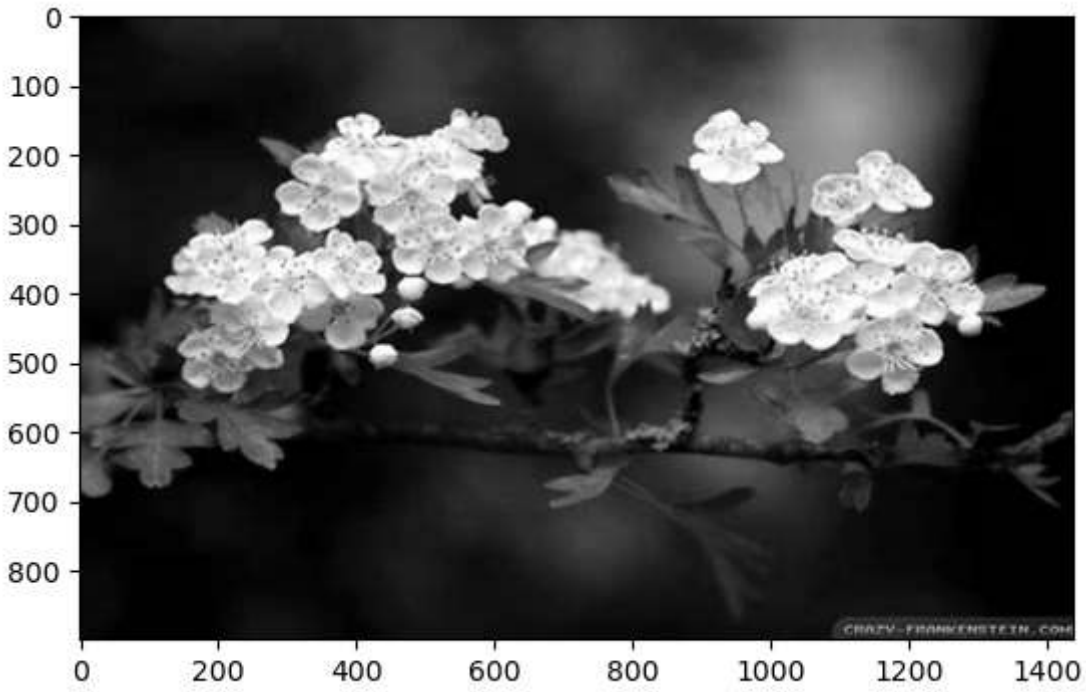
In [37]:
```
plt.imshow(flower_red[:,:,0], cmap='Greys')
```

Out[37]: <matplotlib.image.AxesImage at 0x29504ef3800>



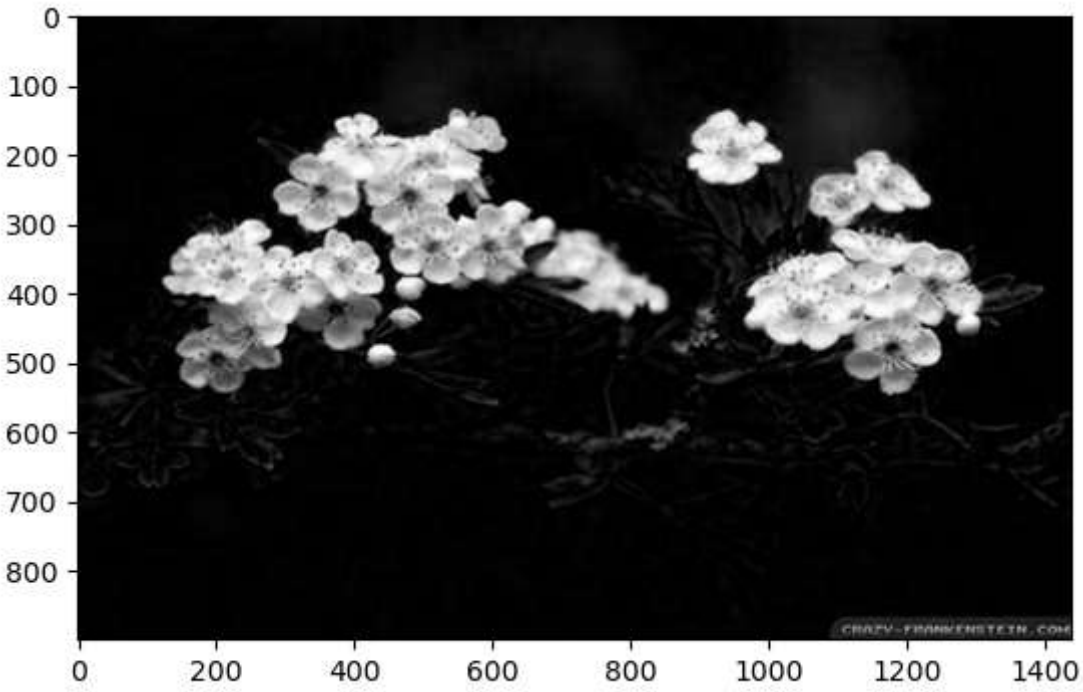
In [38]:
```
plt.imshow(flower_red[:,:,1], cmap='grey')
```

Out[38]:
```
<matplotlib.image.AxesImage at 0x29504f4f230>
```



In [39]:
```
plt.imshow(flower_red[:,:,2], cmap='grey')
```

Out[39]:
```
<matplotlib.image.AxesImage at 0x29504ef31a0>
```



In [40]:
```
flower_red[:,:,0]
```

Out[40]:
```
array([[ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       ...,
       [69, 62, 47, ..., 61, 70, 73],
       [71, 64, 48, ..., 61, 70, 73],
       [73, 65, 49, ..., 60, 69, 73]], dtype=uint8)
```

In [41]:
```
flower_red[:,:,1]
```

Out[41]:
```
array([[ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       ...,
       [76, 69, 54, ..., 59, 68, 71],
       [78, 71, 55, ..., 59, 68, 71],
       [80, 72, 56, ..., 58, 67, 71]], dtype=uint8)
```

In [42]:
```
flower_red[:,:,2]
```

Out[42]:
```
array([[ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       ...,
       [68, 61, 46, ..., 60, 69, 72],
       [70, 63, 47, ..., 60, 69, 72],
       [72, 64, 48, ..., 59, 68, 72]], dtype=uint8)
```

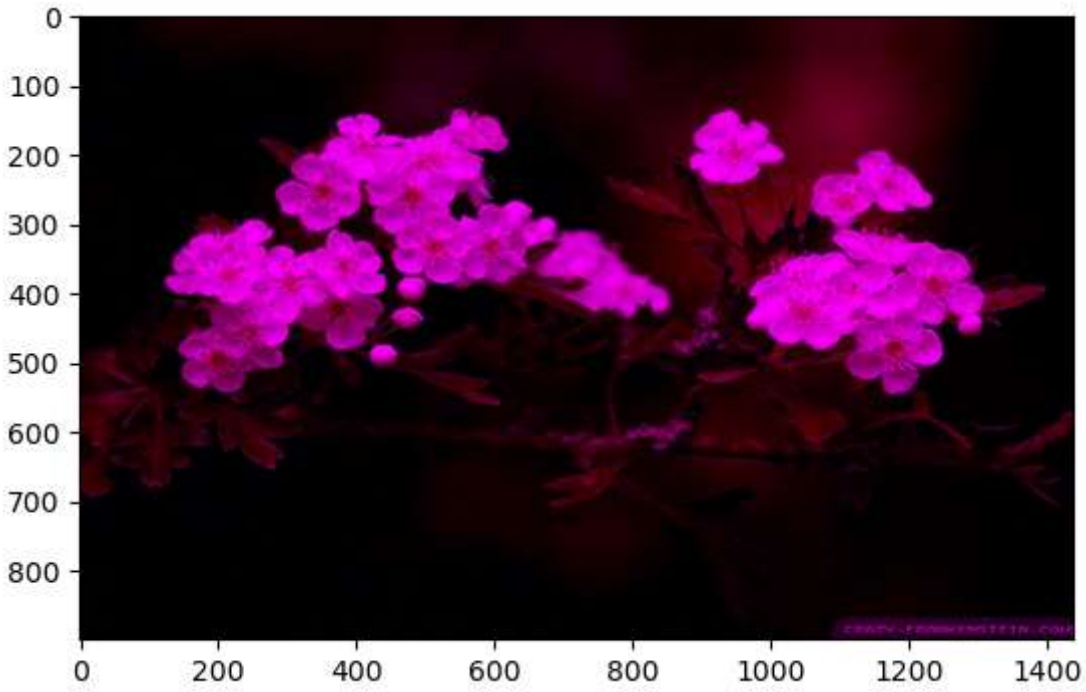
In [43]:
```
flower_red[:,:,1] = 0
```

In [44]:
```
flower_red[:,:,1]
```

Out[44]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [45]:
```
plt.imshow(flower_red)
```

Out[45]:
```
<matplotlib.image.AxesImage at 0x295065f3ad0>
```



In [46]:
```
flower_red[:,:,2]
```

Out[46]:
```
array([[ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       ...,
       [68, 61, 46, ..., 60, 69, 72],
       [70, 63, 47, ..., 60, 69, 72],
       [72, 64, 48, ..., 59, 68, 72]], dtype=uint8)
```

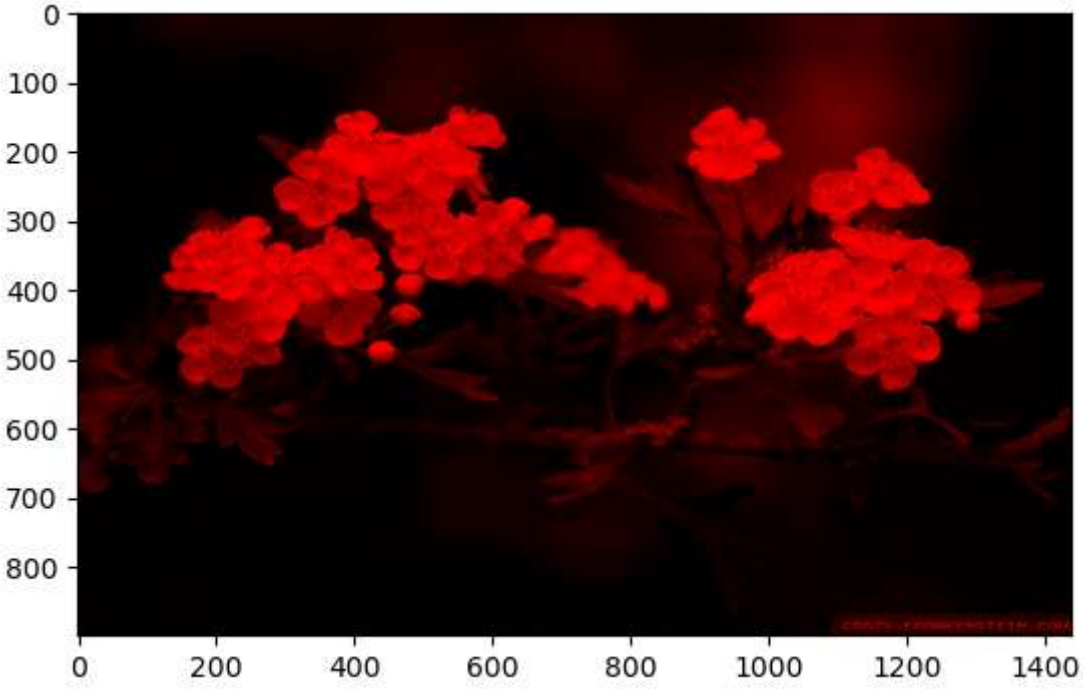
In [47]:
```
flower_red[:,:,2] = 0
```

In [48]:
```
flower_red[:,:,2]
```

Out[48]:
```
array([[0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       ...,
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0],
       [0, 0, 0, ..., 0, 0, 0]], dtype=uint8)
```

In [49]:
```
plt.imshow(flower_red)
```

Out[49]:
```
<matplotlib.image.AxesImage at 0x29506911190>
```



In [50]:
```
flower_arr
```

Out[50]:
```
array([[[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  1,  1],
        [ 1,  1,  1],
        [ 1,  1,  1],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       ...,

       [[69, 76, 68],
        [62, 69, 61],
        [47, 54, 46],
        ...,
        [61, 59, 60],
        [70, 68, 69],
        [73, 71, 72]],

       [[71, 78, 70],
        [64, 71, 63],
        [48, 55, 47],
        ...,
        [61, 59, 60],
        [70, 68, 69],
        [73, 71, 72]],
```

```
[[73, 80, 72],
 [65, 72, 64],
 [49, 56, 48],
 ...,
 [60, 58, 59],
 [69, 67, 68],
 [73, 71, 72]]], dtype=uint8)
```

In [51]:
```
flower_red
```

Out[51]:
```
array([[[ 1,  0,  0],
        [ 1,  0,  0],
        [ 1,  0,  0],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  0,  0],
        [ 1,  0,  0],
        [ 1,  0,  0],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       [[ 1,  0,  0],
        [ 1,  0,  0],
        [ 1,  0,  0],
        ...,
        [ 0,  0,  0],
        [ 0,  0,  0],
        [ 0,  0,  0]],

       ...,

       [[69,  0,  0],
        [62,  0,  0],
        [47,  0,  0],
        ...,
        [61,  0,  0],
        [70,  0,  0],
        [73,  0,  0]],

       [[71,  0,  0],
        [64,  0,  0],
        [48,  0,  0],
        ...,
        [61,  0,  0],
        [70,  0,  0],
        [73,  0,  0]],
```

```
[[73,  0,  0],
 [65,  0,  0],
 [49,  0,  0],
 ...,
 [60,  0,  0],
 [69,  0,  0],
 [73,  0,  0]]], dtype=uint8)
```

In [52]:
```
flower_img
```

Out[52]:

In [53]:
```
arr1 = np.asarray(flower_img)
```

In [54]:
```
type(arr1)
```

Out[54]:
```
numpy.ndarray
```

In [55]:
```
arr1.shape
```

Out[55]:
```
(900, 1440, 3)
```

In [56]:
```
plt.imshow(arr1)
```

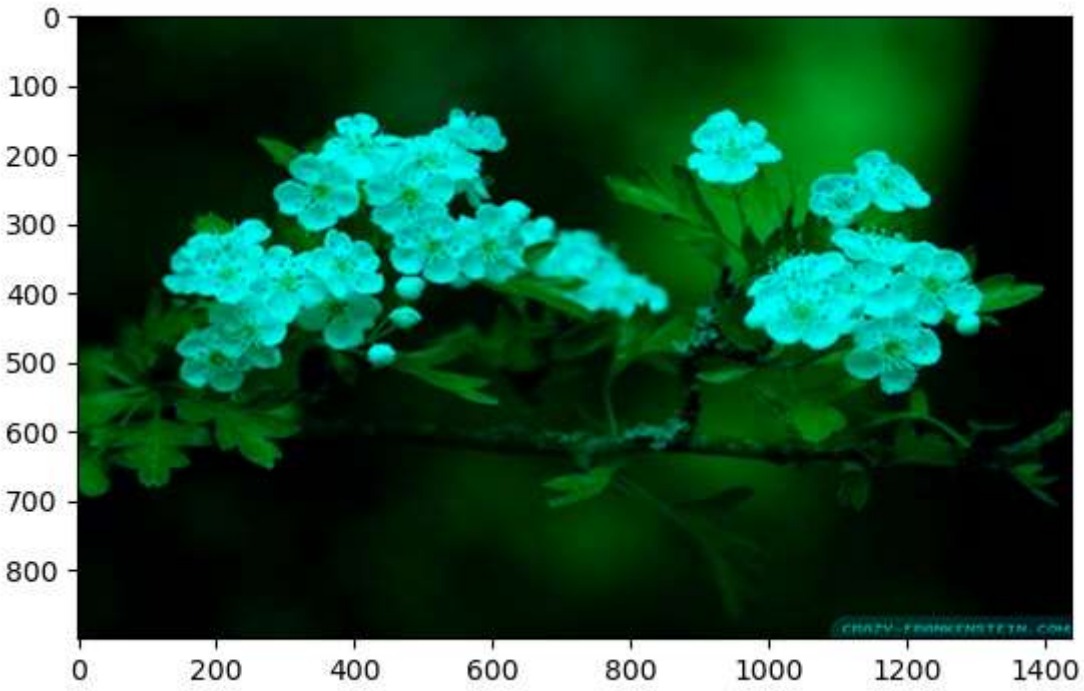
Out[56]:
```
<matplotlib.image.AxesImage at 0x29506961700>
```

In [73]:
```
flower_img1 = arr1.copy()
```

In [58]:
```
flower_img1[:,:,0] = 0
```

In [59]:
```
plt.imshow(flower_img1)
```

Out[59]:
```
<matplotlib.image.AxesImage at 0x29504efc290>
```



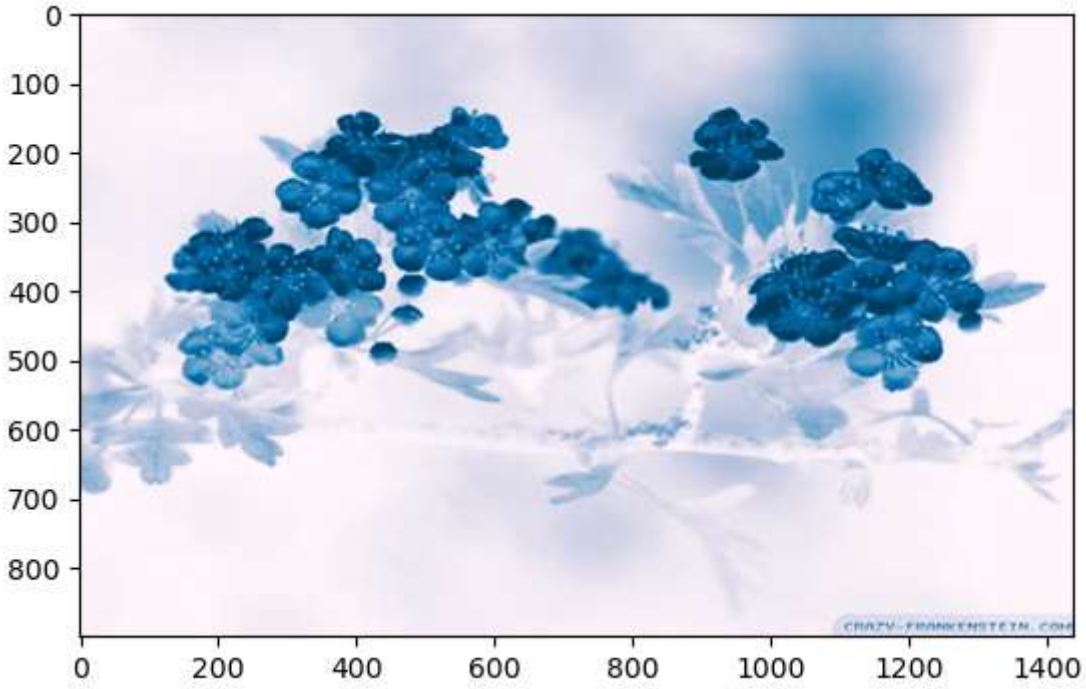
In [74]:
```
flower_img1[:,:,1]
```

Out[74]:
```
array([[ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       [ 1,  1,  1, ...,  0,  0,  0],
       ...,
       [76, 69, 54, ..., 59, 68, 71],
       [78, 71, 55, ..., 59, 68, 71],
       [80, 72, 56, ..., 58, 67, 71]], dtype=uint8)
```

In [87]:
```
flower_img1[:,:,1] = 0
```

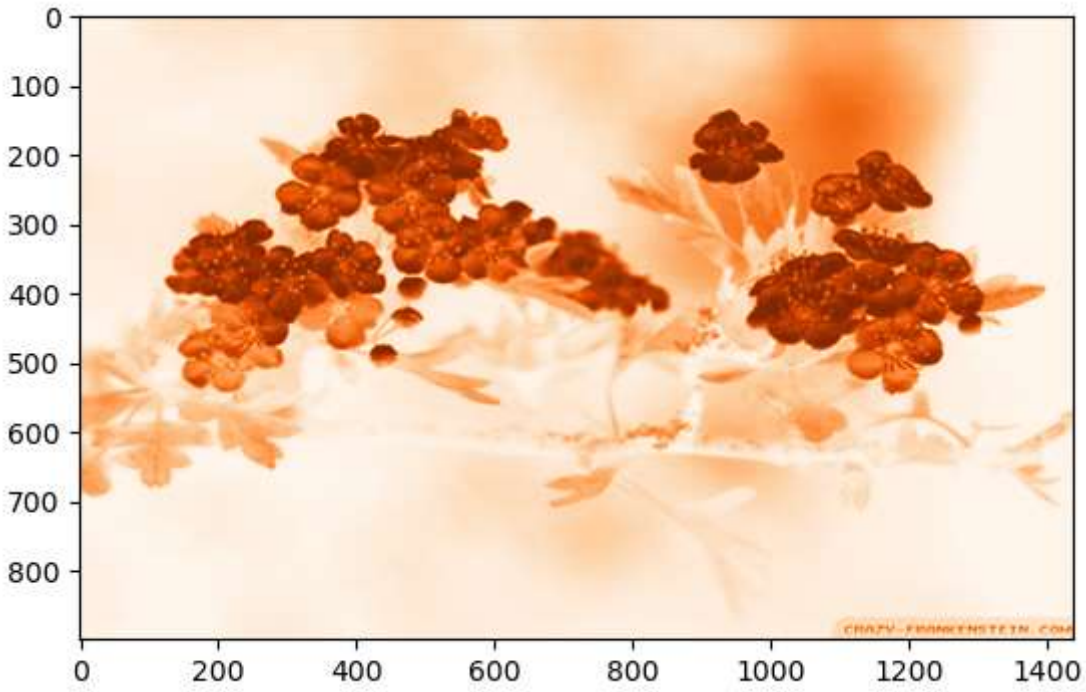
In [75]:
```
import matplotlib.pyplot as plt
plt.imshow(flower_img1[:,:,1],cmap= 'PuBu')
```

Out[75]: <matplotlib.image.AxesImage at 0x2950df95610>



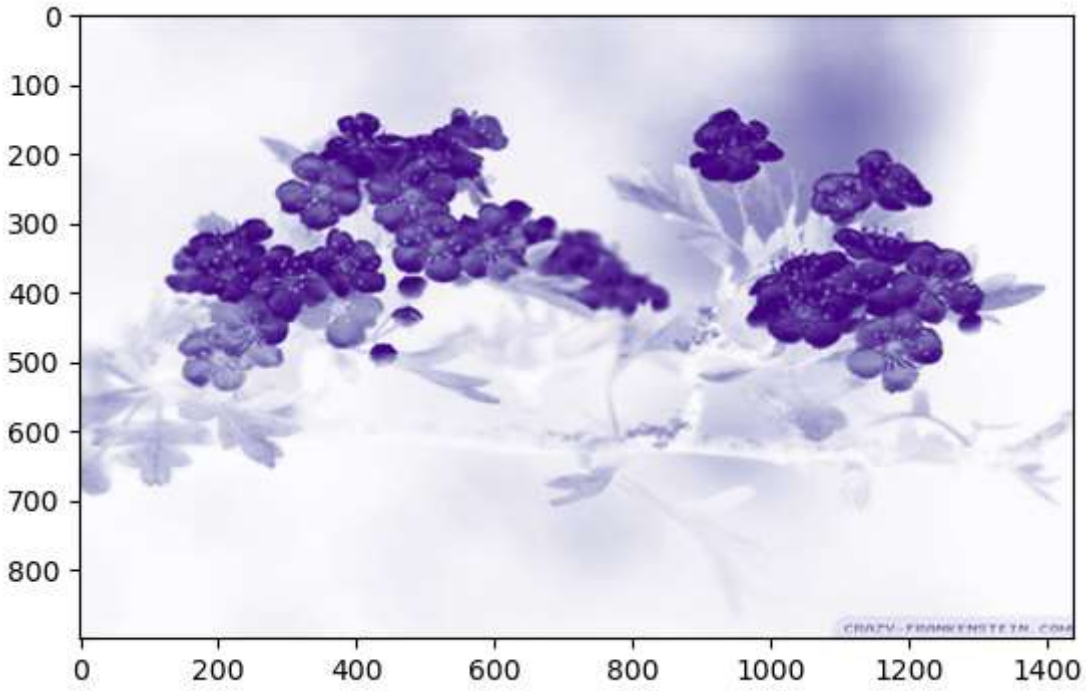
In [77]:
```
plt.imshow(flower_img1[:,:,1],cmap='Oranges')
```

Out[77]: <matplotlib.image.AxesImage at 0x2950e6f4e00>



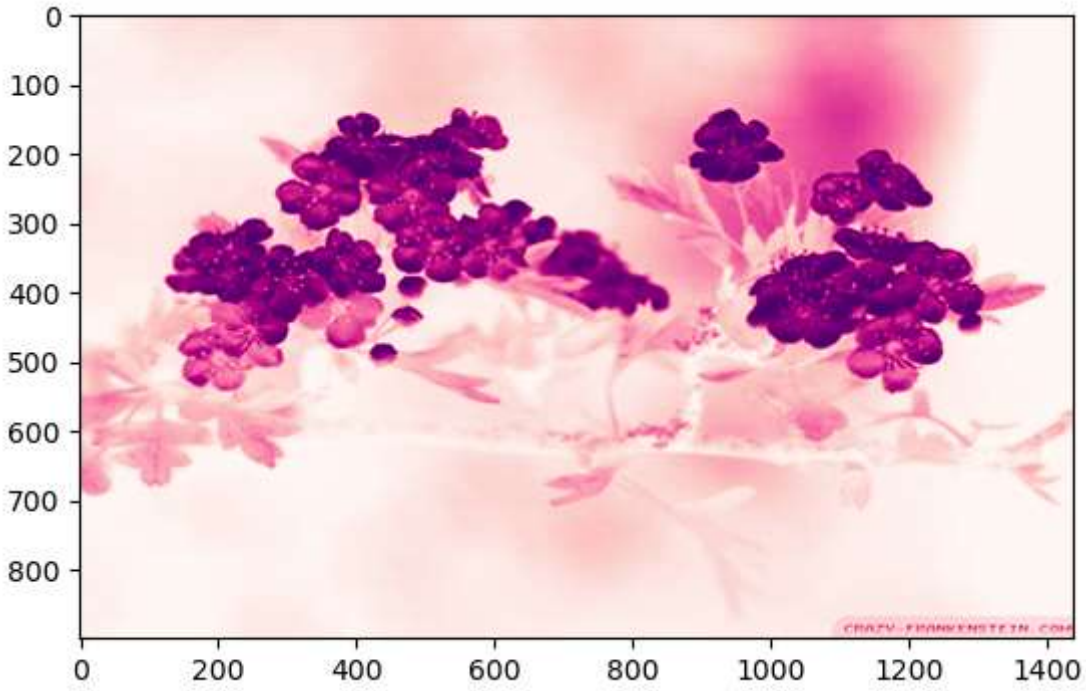
In [79]:
```
plt.imshow(flower_img1[:,:,1],cmap='Purples')
```

Out[79]:
```
<matplotlib.image.AxesImage at 0x295101090d0>
```



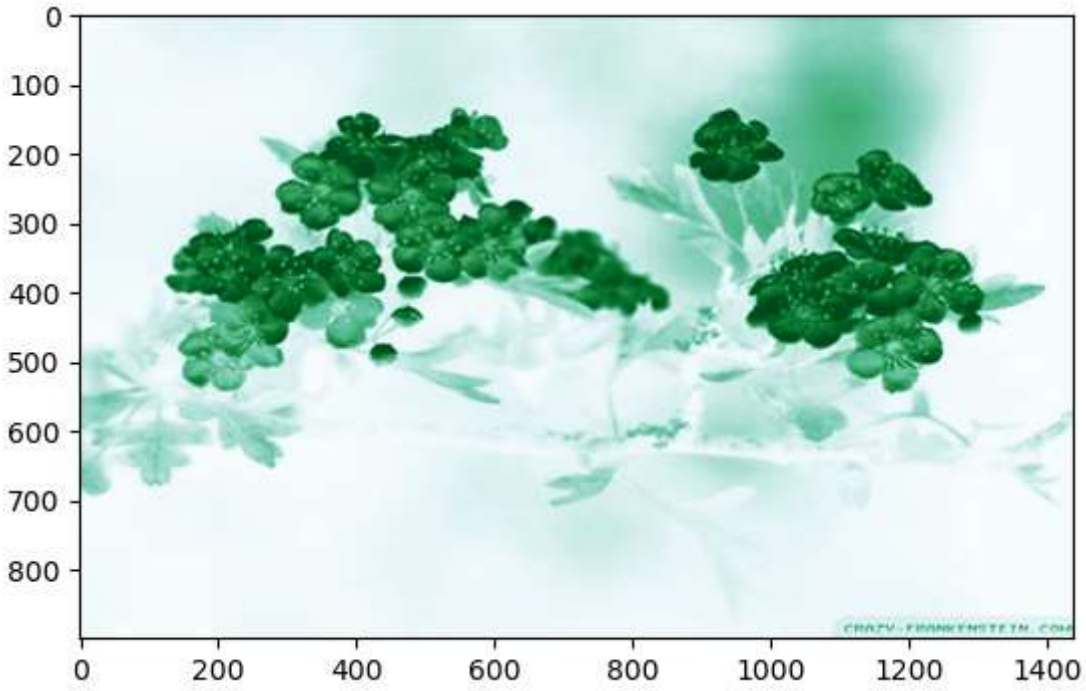
In [80]:
```
plt.imshow(flower_img1[:,:,1],cmap='RdPu')
```

Out[80]:
```
<matplotlib.image.AxesImage at 0x29510121700>
```



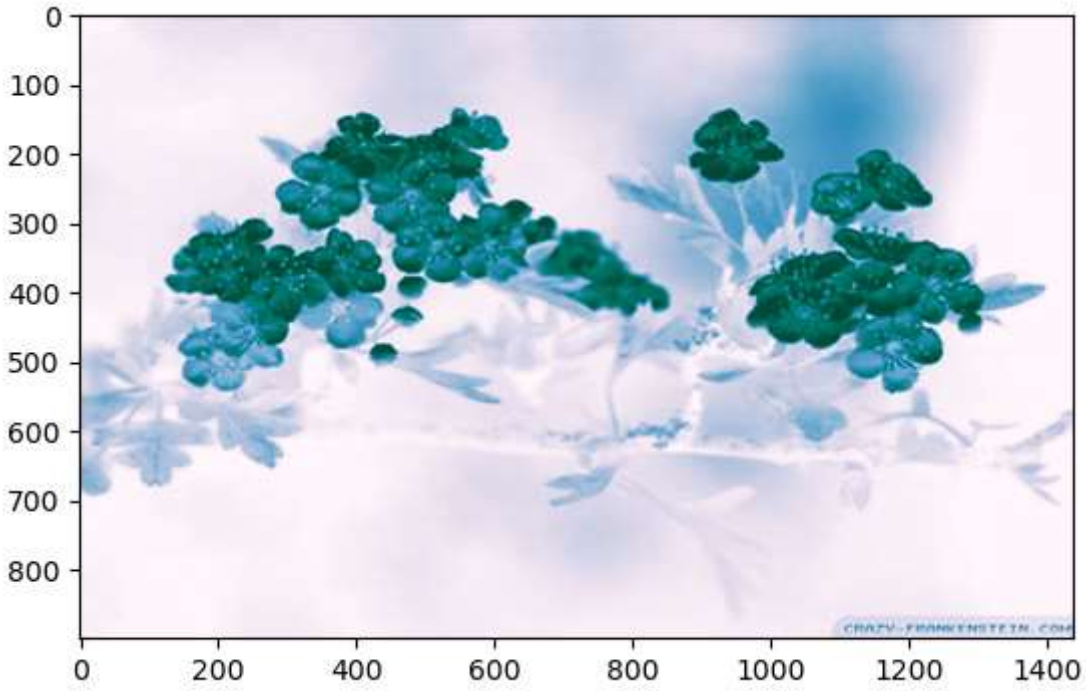
In [82]:
```
plt.imshow(flower_img1[:,:,1],cmap='BuGn')
```

Out[82]:
```
<matplotlib.image.AxesImage at 0x29506769880>
```



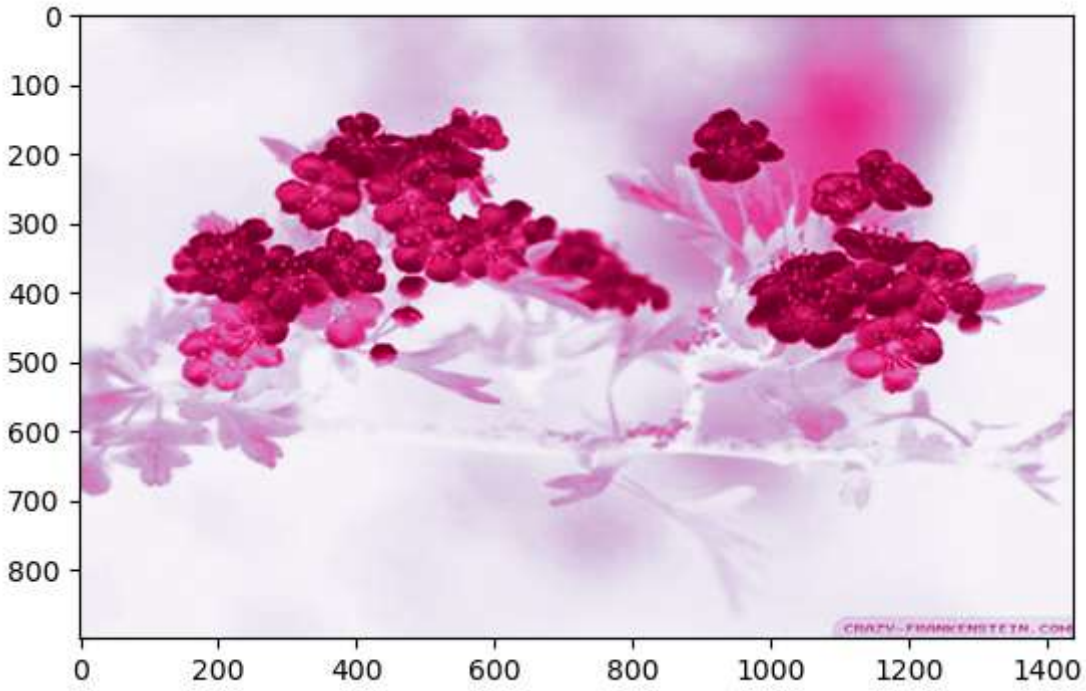
In [83]:
```
plt.imshow(flower_img1[:,:,1],cmap='PuBuGn')
```

Out[83]:
```
<matplotlib.image.AxesImage at 0x29502f649b0>
```



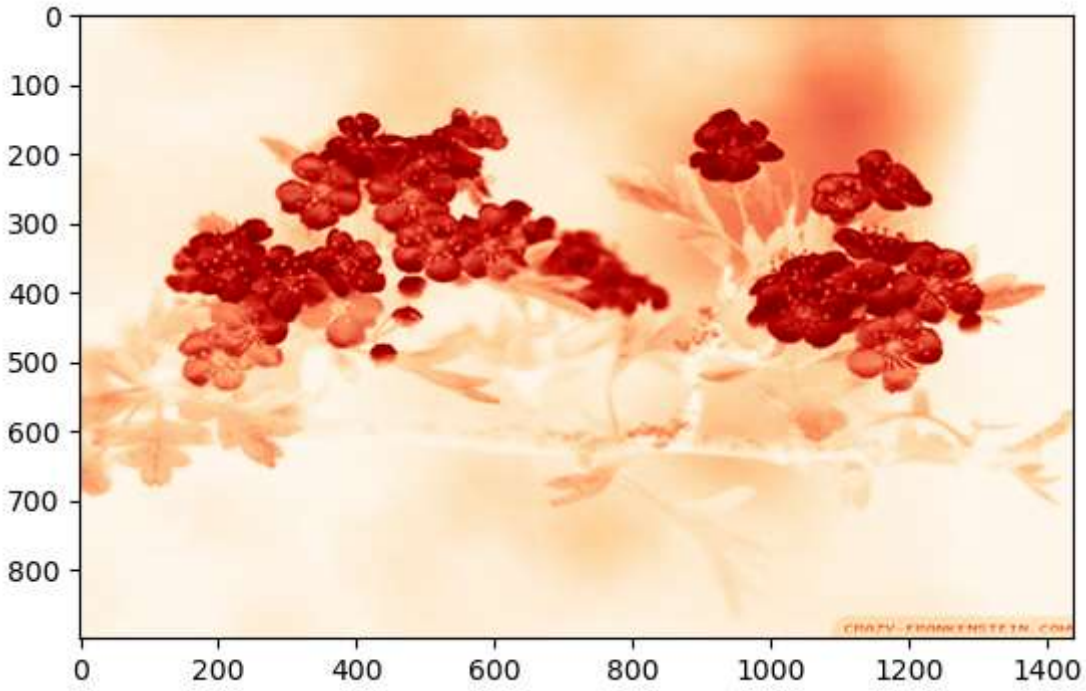
In [84]:
```
plt.imshow(flower_img1[:,:,1],cmap='PuRd')
```

Out[84]:
```
<matplotlib.image.AxesImage at 0x295104531a0>
```



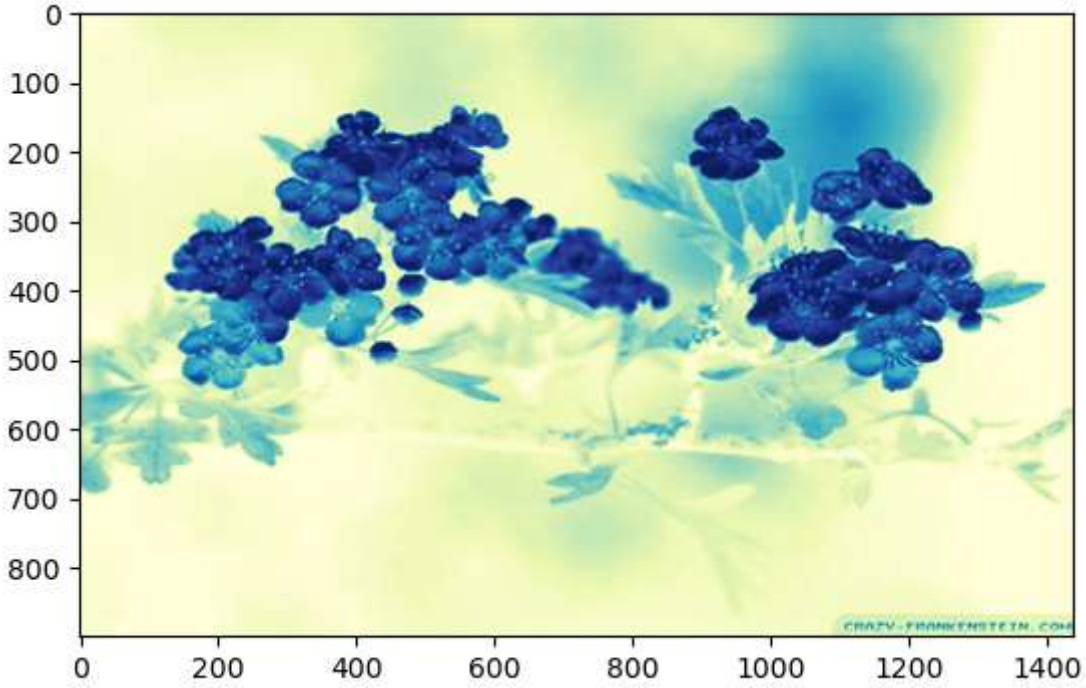
In [85]:
```
plt.imshow(flower_img1[:,:,1],cmap='OrRd')
```

Out[85]:
```
<matplotlib.image.AxesImage at 0x2950e71cb30>
```



In [86]:
```
plt.imshow(flower_img1[:,:,1],cmap='YlGnBu')
```

Out[86]:
```
<matplotlib.image.AxesImage at 0x29510a21970>
```


0
100
200
300
400
500
600
700
800
0
200
400
600
800
1000
1200
1400

In [ ]: