



## A survey study of fig mosaic disease in southern Iraq confirming the presence of a Fig fleck-associated virus *FFKaV*

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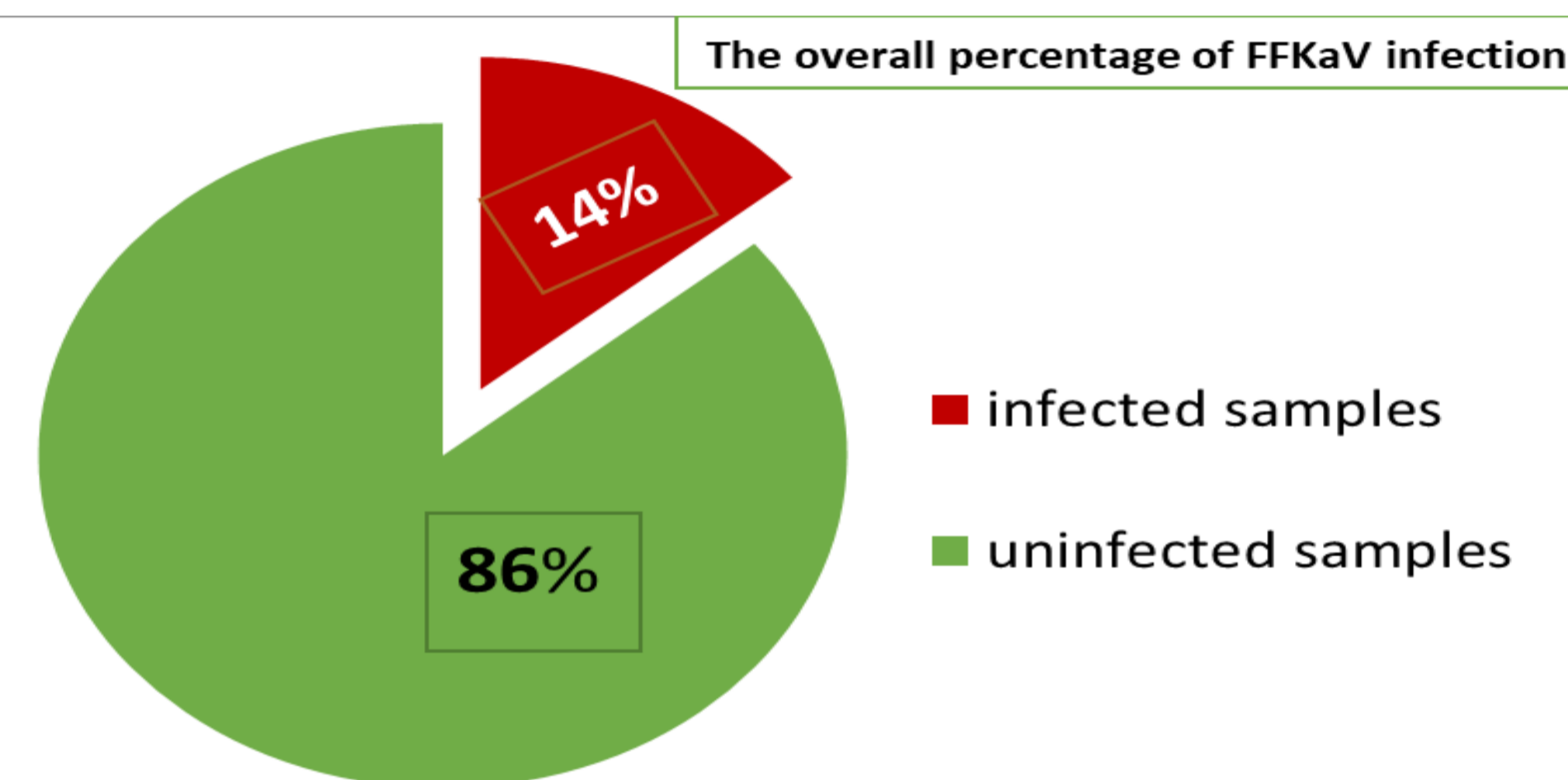
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### Introduction

*Ficus carica* fig trees of the *Moraceae* family are considered one of the oldest and most important fruit trees bearing fruit in many countries of the world with temperate climates and are considered to have high nutritional value, (1) and they have recently received great interest among Iraqi farmers, especially in the south of the country. The most dangerous disease affecting figs, which reduces crop productivity in quantity and quality is FMD, is caused by a group of viruses, most of which were detected in Iraq, except for the Fig Fleck-associated Virus (*FFKaV*), which belongs to the genus *Maculavirus* of the family *Tymoviridae*, it is an ssRNA virus (+), the aim of this study is to conduct a survey of some areas of southern Iraq planted with figs to find out the severity of infection with *FFKaV* and to determine the percentage of its association with other viruses that cause the disease



It was found that when a targeted piece of cDNA was duplicated, it produced bands of the same size 270 bp, and this indicates that the virus under study is the Fig Fleck-associated Virus.

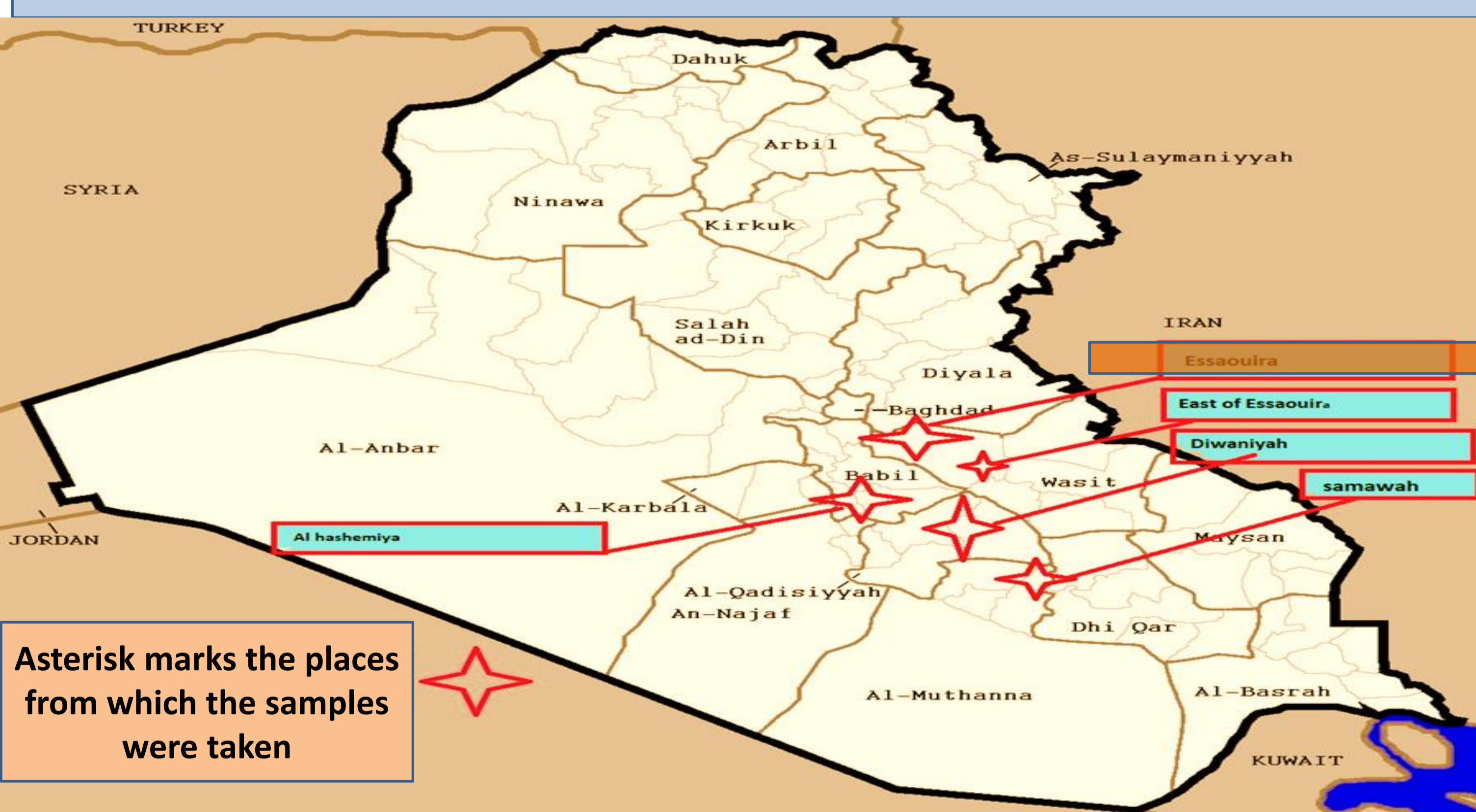


The results showed that there were differences in the severity of the infection between the geographical regions, and the total infection rate was with a virus *FFKaV* (14%) in southern Iraq

### Materials and methods:

The survey was conducted in southern Iraq, samples were collected from four geographical regions as shown in Figure (1), a total of 100 fig leaf samples were collected and TNAs were extracted according to Foissac et al. (2001), the diagnosis was made using RT-PCR to confirm the virus diagnosis using primers specific for *FFKaV* that are  
d8 -s ATGACGACTGTCAACTCCCT  
d8-a TTAAGCCAGGGTGGGAGTGTG  
The product was migrated on an agarose gel (1.2%, 1x TBE solution) stained with ethidium bromide, and photographed under UV light

Samples from the Samawah region were the most infected of *FFKaV*, with a rate of 26%, followed by samples from eastern Essaouira (17%). Then the samples of the Diwaniyah region were 12%, and the lowest percentage was in the Hashemite region, which amounted to 4%, as in Figure (3) regarding the rates of mixed infection between this virus and the rest of the viruses that cause the disease, as it was as follows: Mixed infections of *FFKaV* were found in 71.4% of infected samples for *FCV* with *FFKaV*, and 50% of infected samples for *FMV* with *FFKaV*. They were also found in 42.2%, 14.2%, and 7% of infected samples for *FFKaV* with *FLMaV-1*, *FLMaV-2*, and *FMMaV*, respectively. as in Figure No. (6). This study showed the prevalence of the virus *FFKaV* and the percentage of its mixing with viruses that cause fig mosaic disease. Knowing the causative factors is important in taking the necessary preventive measures to limit the spread of this disease



Asterisk marks the places from which the samples were taken

Figure (1) The geographical map of the Republic of Iraq, marked by the southern regions from which the study samples were taken

### Results and discussion :

A group of symptoms were observed on the leaves from which deformations Mosaic, on younger leaves the clearing (flecking) of some veins.

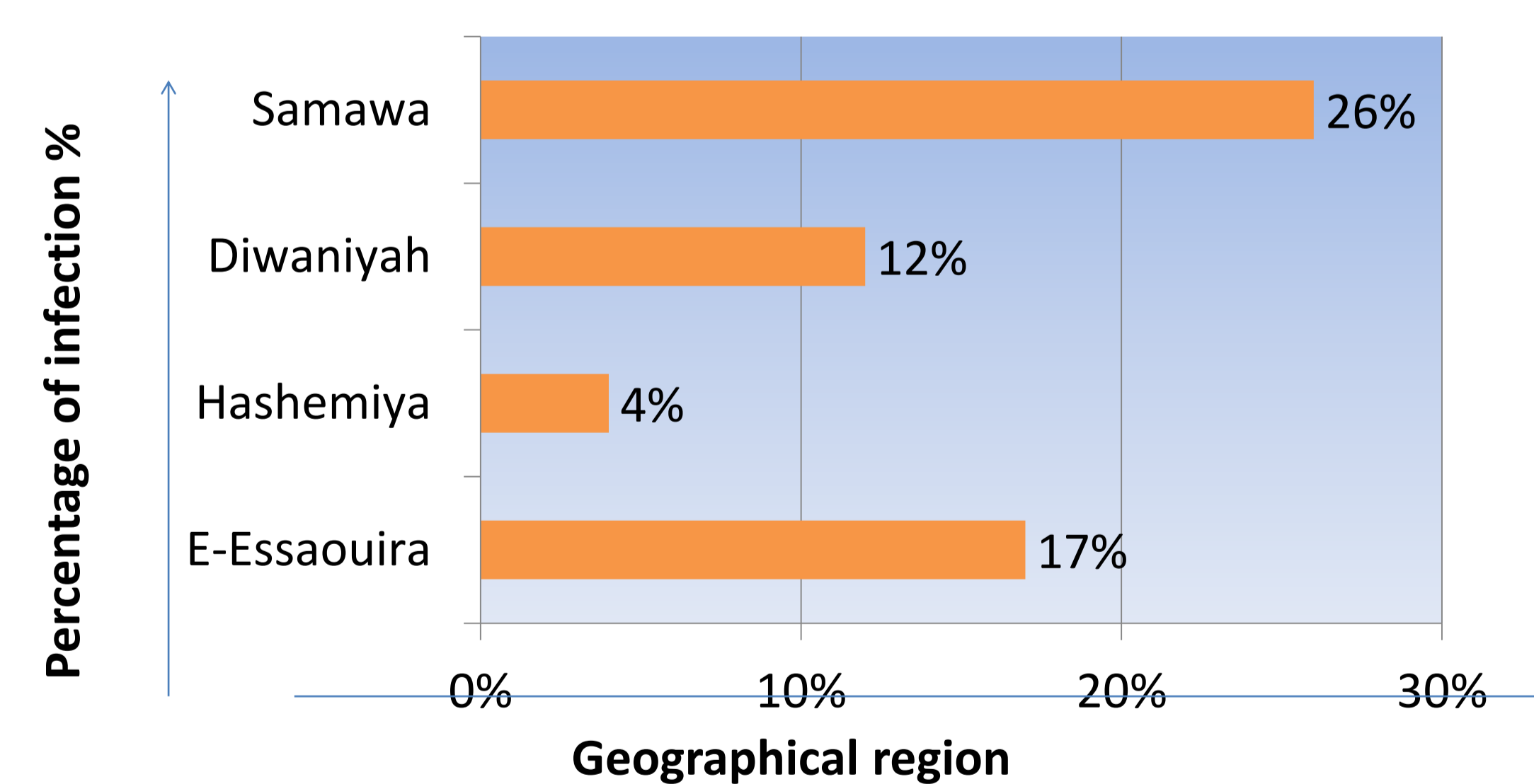


Figure 5: Distribution of *FFKaV* infections by geographical regions in this study

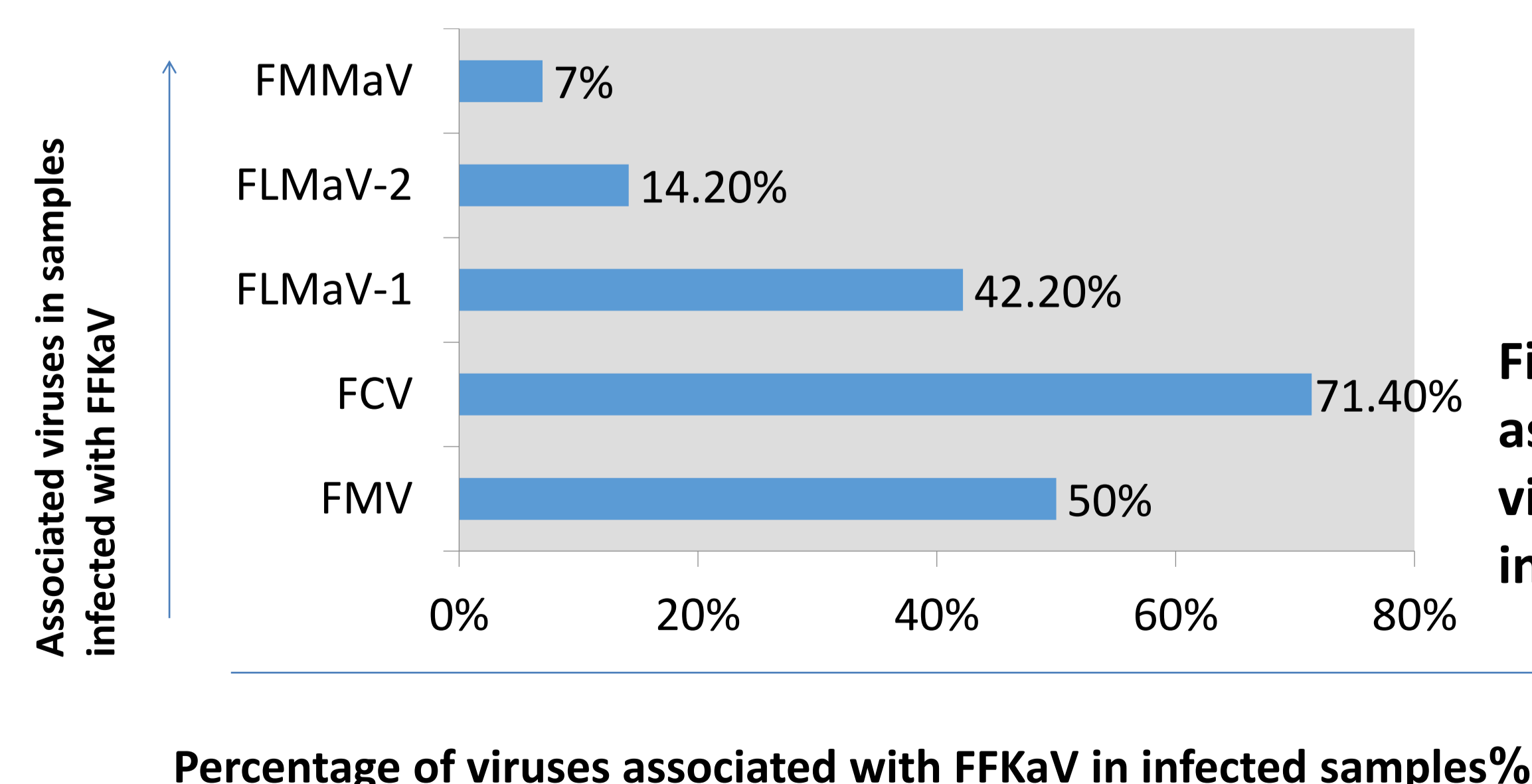


Figure 6: Percentage of association of other viruses with *FFKaV* in infected samples

### Reference:

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